



Nortel IVR 2.5/S

Product Overview Guide

Product release 2.5/S

Standard 1.0

July 1997

NORTEL
NORTHERN TELECOM

Nortel IVR 2.5/S

Product Overview Guide

Product release: 2.5/S
Document release: Standard 1.0
Date: July 1997

© 1997 Northern Telecom
All rights reserved

Printed in the United States of America

Information is subject to change without notice. Northern Telecom reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant.

IVR and Nortel are registered trademarks of Northern Telecom in the U.S. and Canada. IVR Generator 2.0/S and Meridian 1 are registered trademarks of Northern Telecom. DEC and VT 420 are registered trademarks of Digital Equipment Corporation. HP, LaserJet, and ThinkJet are registered trademarks of Hewlett-Packard Company. X Window System and X are trademarks of the Massachusetts Institute of Technology. Unix is a registered trademark of AT&T. SCO is a trademark of The Santa Cruz Operation, Inc. INGRES is a trademark of Ingres, Corp. ORACLE is a trademark of Oracle Corp. INFORMIX is a trademark of Informix Software, Inc. SYBASE is a trademark of Sybase, Inc.

Publication history

July 1997 The *Product Overview Guide* for Nortel IVR 2.5/S is issued as Standard 1.0.

Contents

About this guide	xiii
Overview	xiii
Conventions used in this guide	xiii
Additional manuals	xiv

1	Introduction	1-1
	Overview	1-1
	Upgrading to Nortel IVR 2.5/S	1-1
	Upgrading options (TTS, ASR, Fax)	1-1
	VAD revalidation required	1-2

2	New features	2-1
	Overview	2-1
	Resource sharing	2-1
	Overview	2-1
	Configuration of Fax, TTS, and ASR with the Aculab E1 card	2-2
	Configuration of Fax, TTS, and ASR with the D/41ESC card	2-2
	Enhanced capacity	2-3
	Overview	2-3
	Prompt management tool	2-5
	Overview	2-5
	Protocols	2-5
	Overview	2-5
	North American ISDN PRI Support	2-5
	Aculab-based E1 CAS and ISDN PRI Support	2-5
	PDAT cell support for the Japanese language	2-6
	External tape drive for emergency backup and restoration	2-6

Hardware improvements	2-7
Aculab 60-port E1 card	2-7
50 MHz Text-To-Speech card	2-7
133 MHz processor for AP and MRS/AP	2-7
PC/Xem card support for the MRS/AP	2-8
New model number for AP and MRS/AP 1 Gbyte Seagate hard drive	2-8
Modems	2-8
MRS/AP TTS/SR Conversion Utility	2-8

3	IVR Generator enhancements	3-1
	Overview	3-1
	Text-To-Speech Enhancements	3-1
	Enhanced Programming Features	3-2
	Call Information (CINFO) Cell	3-2
	Enhancements to the TONE cell	3-10
	International system prompts	3-11
	Offset ranges	3-11
	Installing international system prompts	3-11
	Additional standard prompts	3-12
	ADSI Option	3-15
	New script file	3-23

4	User issues	4-1
	Overview	4-1
	Supported SQL versions	4-1
	Accessing a remote Sybase database	4-2
	Hang ups not detected by PLAY, PDAT, GDAT, COUT cells	4-3
	Reports that require landscape printing	4-3
	MRS Disk Mirroring	4-3
	Hard disk partitioning	4-4
	Simultaneous use of run-time systems for development purposes not supported	4-4
	Deleting VSNs in ADSI	4-4
	ACD Logon/Logoff requirements	4-4
	Loopstart Trunk Parameter change recommendation	4-5
	Default IP Address and Node Names	4-6
	MRS External Alarm Interfaces	4-7

User Functions	4-9
Building a New User Function	4-9
Testing a User Function	4-9
Promoting the User Function	4-9
3270/5250 SNA/SDLC card—pinout and pin assignments	4-10
Overview	4-10
DB-15 Connectors and cabling	4-10
TTS — American English supplement	4-13
Phonetic alphabet	4-13
The control sequences.	4-14
Notes on the American English TTS system	4-15
Remote access to Nortel IVR.	4-17
Exiting the System Monitor.	4-17
US Robotics 28.8 and 33.6 Data/Fax Modem — settings	4-18
Using a modem to access the SCI.	4-20
Using ZMODEM Communication Protocol for Transferring Files	4-22
Application development recommendation.	4-23
Serial port configuration procedure for the AP.	4-24

5	Digital Prompt Tool	5-1
	Introduction.	5-1
	Purpose of this chapter	5-1
	Audience and prerequisites	5-1
	Related publications.	5-1
	In this chapter	5-2
	Overview	5-3
	Features.	5-3
	System requirements	5-3
	Installing the Digital Prompt Tool	5-3
	System configuration	5-4
	Default and alternative values for the system configuration file	5-4
	Accessing the Digital Prompt Tool	5-4
	Enter selection field	5-5
	Selecting system functions	5-6
	Quick Prompts	5-7
	Accessing Quick Prompts	5-8
	Loading prompts	5-9
	Adding a prompt header	5-10
	Executing the Trim silence function	5-11
	Download prompts to the MRS	5-12

Load Prompts on the AP or MRS/AP	5-13
Accessing the Load Prompts function	5-14
Loading tar files	5-15
Load DOS file.	5-16
Return to Main Menu	5-17
Add header to voice prompts	5-17
Accessing the Add Header to Voice Prompts menu	5-18
Adding a VSN header to a selected range of voice prompts	5-19
Adding a VSN header to a single prompt.	5-20
Adding a VSN header to a voice file	5-21
Return to Main Menu	5-22
Add header to fax prompts	5-23
Accessing the Add Header to Fax Prompts menu	5-23
Adding a VSN header to a single fax file	5-24
Return to Main Menu	5-25
Trim silence	5-26
Accessing the Trim silence function	5-27
Trim a range of prompts	5-28
Trim a single prompt.	5-30
Return to Main Menu	5-31
Exit	5-32
Exiting from the Digital Prompt Tool application.	5-32
Load prompts on the MRS	5-32

6	Upgrading to Nortel IVR 2.5/S	6-1
	Overview	6-1
	In this chapter	6-1
	Section A: Before you begin	6-2
	Overview	6-2
	Nortel Support	6-2
	IVR 2.5/S upgrade checklist.	6-3
	Verifying software levels	6-10
	Verifying the base software level	6-11
	Verifying the BIOS version level.	6-11
	Determining system options and revision levels	6-11
	Determining if the MRS is configured with disk mirroring	6-12
	Software upgrade package	6-13
	SCO Operating System	6-15
	System backup.	6-15

Section B: Upgrade procedures	6-16
Overview	6-16
MRS and options upgrade procedures	6-16
Preparing an MRS with disk mirroring for upgrade	6-16
Preparing an MRS without disk mirroring and MRS/AP for upgrade	6-20
Upgrading the MRS base system	6-22
Adding the MRS 3.02.02 Dialogic PTR 3427	6-23
Span Driver (MRS only)	6-25
International Country Parameters	6-26
Upgrading the MRS system configuration	6-27
D/41ESC firmware patch for the MRS and MRS/AP	6-30
Disk Mirroring Option	6-30
D/81A firmware patch for the MRS and MRS/AP	6-30
Installing the Line side T1 Trunk file	6-31
Installing the Nortel T1 ACD Trunk Type Option file	6-31
Installing the Nortel Analog ACD Trunk Type Option file	6-32
Installing MRS and VSN Backup scripts	6-32
AT&T G3, Rolm, and DMS100 Trunk files	6-33
MRS/AP TTS/SR Conversion Utility	6-34
E1 CAS/ISDN PRI for the MRS and MRS/AP	6-34
Completion of the MRS base system package upgrades	6-35
Options	6-36
Text-To-Speech	6-36
Fax Option	6-37
ASR Option	6-39
IVR Generator 2.5/S	6-42
IVR Generator Upgrade	6-42
Adding manual pages to the AP	6-47
Installing the AP and MRS/AP HD Backup script	6-48
Report Writer	6-48
Report Writer modifications	6-50
Synchronizing VSN data files	6-51
File Transfer Utility	6-51
SCO serialization (AP only)	6-52
Final steps in the upgrade process	6-52
SCO Unix Year 2000 patch	6-52
Installing SCO Support Level Supplements required to support Sybase 10.0	6-53
Installing SCO Support Level Supplements required to support Oracle	6-56

Nortel Customization procedure	6-58
Checking the installation	6-59
Updating applications to the Nortel IVR Release 2.5 level	6-60
Reconnecting the secondary hard disk (MRS with disk mirroring only)	6-61
Updated backup	6-62

7 Options—new installations 7-1

Overview	7-1
Fax	7-2
Overview	7-2
Before you begin the software installation	7-2
Installing the fax option software	7-2
Speech Recognition	7-5
Overview	7-5
Before you begin the software installation	7-5
Software installation	7-5
Text-To-Speech	7-8
Overview	7-8
Before you begin the software installation	7-8
Software installation	7-8
ADSI User function	7-16
Installing the D/320SC ADSI firmware patch	7-16

8 Backup procedures 8-1

Overview	8-1
Backup time required	8-1
Before you begin	8-2
Backup Tool	8-3
Backup list	8-4
Backups	8-7
Backup of the AP or MRS/AP	8-7
VSN files backup on the MRS/AP	8-8
Backup of the MRS	8-10
Backup of VSNs on MRS	8-11
External tape drive for emergency backup and restoration	8-13
Overview	8-13
Setting up the hardware	8-13
Configuring the software	8-13

9	Failure recovery	9-1
	Overview	9-1
	Nortel IVR 2.5/S failure recovery/restoring data.	9-1
	Overview	9-1
	Before you begin the restore procedure.	9-1
	Restoring from the backup image tape (AP or MRS/AP)	9-3
	VSN Volumes Restoration for MRS/AP	9-4
	MRS/Tower or MRS/Rack restoration.	9-9
	MIT process preparations for MRS/Tower or MRS/Rack restoration	9-9
	Restoring from the backup image tape (MRS/Tower or MRS/Rack)	9-10
	VSN Volumes Restoration for MRS/Tower or MRS/Rack.	9-13
	Disk mirroring failure recovery	9-15
	Overview	9-15
	Failure recovery for the primary or secondary disk	9-15
	Testing the Disk Mirroring Option	9-18
	Check the disk mirroring volumes	9-18
	Performing a low level format on a hard disk	9-20

10	Installing and configuring additional disks on the AP	10-1
	Configuring the second hard disk.	10-1
	Physically installing the parity disk	10-2
	Final installation of the secondary disk	10-3
	Mounting the new file system.	10-6
	Adding third and fourth hard disks	10-7

11	SCI command reference changes	11-1
	Overview	11-1
	Configuration menu	11-2
	The Status menu	11-11

12	Upgrading a run-time system to a development system	12-1
	Overview	12-1
	Upgrade	12-1

13	Configuring a network printer	13-1
	Overview	13-1
	Configuring a network printer.	13-1

List of terms

List of terms-1

Index

Index-1

About this guide

Overview

The *Product Overview Guide* describes the new features and enhancements that are part of Nortel IVR 2.5/S. It also provides the upgrade and installation procedures required to install a Nortel IVR 2.5/S system. This guide makes references to the *Nortel IVR 2.0/S Installation and Maintenance Guide* where necessary.

Conventions used in this guide

Throughout this guide, several typographic conventions have been used to highlight certain types of information:

- Items that appear on the Nortel IVR 2.5/S screens are identified in quotes (for example, the “Timeout” part of the parameters window).
- Prompts are shown in a different typeface (for example, `/sci>`).
- Menu names and options are shown in a different typeface (for example, the `sci/install` menu).
- Directories and accounts are shown in a different typeface (for example, the `nortel` directory).
- Nortel IVR 2.5/S buffer names are shown in all uppercase characters (for example, the `CURRENT MESSAGE` buffer).
- Items that are file names or messages are shown in a different typeface (for example, the `/u/nortel/3270/getbalance.act` file).
- Items you must type are shown in bold in a different typeface (for example, type **te5250** at the prompt).
- Variables shown in command lines appear in italics (for example, the `host_cfgn` file, where *n* is a variable representing a board number).

- Key names you press are shown in bold (for example, the <**F1**> key).
- Keyboards usually have keys named <Return> or <Enter> that perform the same function. For convenience, this guide uses the keyname <**Enter**> to represent both keynames.
- Field names are shown in italics (for example, the *Device* field).

Additional manuals

Please refer to the Nortel IVR 2.0/S suite to complement the information provided in the Nortel IVR 2.5/S guides. In particular, you may find the following documents useful:

- *Nortel IVR 2.0/S MRS/AP Product Manual* (P0813831)
- *Nortel IVR 2.0/S MRS/Tower Product Manual* (P0813832)
- *Nortel IVR 2.0/S MRS/Rack Product Manual* (P0813830)
- *Nortel IVR 2.0/S Installation and Maintenance Guide* (NT6R92AA)
- *IVR Generator 2.0/S Application Development Guide* (P0813809)
- *IVR Generator 2.0/S System Administration Guide* (P0813837)
- *IVR Generator 2.0/S Service Console Interface Reference Manual* (P0813838)
- *IVR Generator 2.0/S Cell Catalog* (P0813810)

Chapter 1: Introduction

Overview

This guide describes

- the new features and enhancements provided in the release of Nortel IVR 2.5/S
- procedures for upgrading to Nortel IVR 2.5/S
- failure recovery procedures
- installation procedures for new options (installed on an IVR 2.5/S system)
- installation and configuring procedures for additional disks on an AP system
- SCI command reference enhancements

Upgrading to Nortel IVR 2.5/S

The upgrade procedures in Chapter 6, “Upgrading to Nortel IVR 2.5/S,” provide all the steps you need to follow for an upgrade from Nortel IVR 2.01/S to Nortel IVR 2.5/S.

Upgrading options (TTS, ASR, Fax)

If the options are already installed in your Nortel IVR 2.01/S system, then the upgrade procedures in Chapter 6 will upgrade these options for Nortel IVR 2.5/S.

If you upgrade to Nortel IVR 2.5/S and then want to add an option that you did not have in Nortel IVR 2.01/S, then you will need to separately install these options as described in Chapter 7, “Options—new installations.”

VAD revalidation required

As with any software upgrade, the IVR 2.5/S upgrade contains changes to the software.

Value Added Distributors (VADs) are required to revalidate all customer applications in a development or test environment before promoting the migrated applications to a runtime customer environment for production use. (By using the revalidation process, VADs can assist to resolve customer application problems quickly and safely.)

Chapter 2: New features

Overview

This chapter describes the new features and enhancements provided in the release of Nortel IVR 2.5/S. These features and enhancements include the following:

- resource sharing (with D/41E-SC and Aculab E1 cards)
- MRS/AP enhanced capacity
- a utility for managing voice prompts and fax files (if purchased separately)
- protocols enhancements
 - North American Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) support
 - Aculab-based E1 ISDN support (Enhanced Digital Private Network Signaling System [DPNSS])
- PDAT cell support for the Japanese language
- external tape drive for emergency backup and restoration
- hardware improvements
- MRS/AP TTS/SR Conversion Utility

Resource sharing

Overview

This section provides information on the enhancements in this release which allow for the sharing of resources with the Aculab E1 and D/41ESC cards.

Resource sharing is the capability to share Fax, Text-To-Speech, and Speech Recognition ports among voice processing ports over the PCM Expansion Bus (PEB).

Nortel IVR 2.5/S supports the sharing of Fax, Text-To-Speech, and Speech Recognition ports on the PEB bus when used with the Aculab E1 and D/41ESC cards. This capability is not available with earlier releases of the Nortel IVR product.

Configuration of Fax, TTS, and ASR with the Aculab E1 card

For information on the configuration of the Aculab E1 card and its connectivity over the PCM Expansion Bus to Fax, TTS, and Automatic Speech Recognition (ASR) boards, refer to *Aculab-Based E1 CAS/ISDN PRI Signaling Guide* (P0869328).

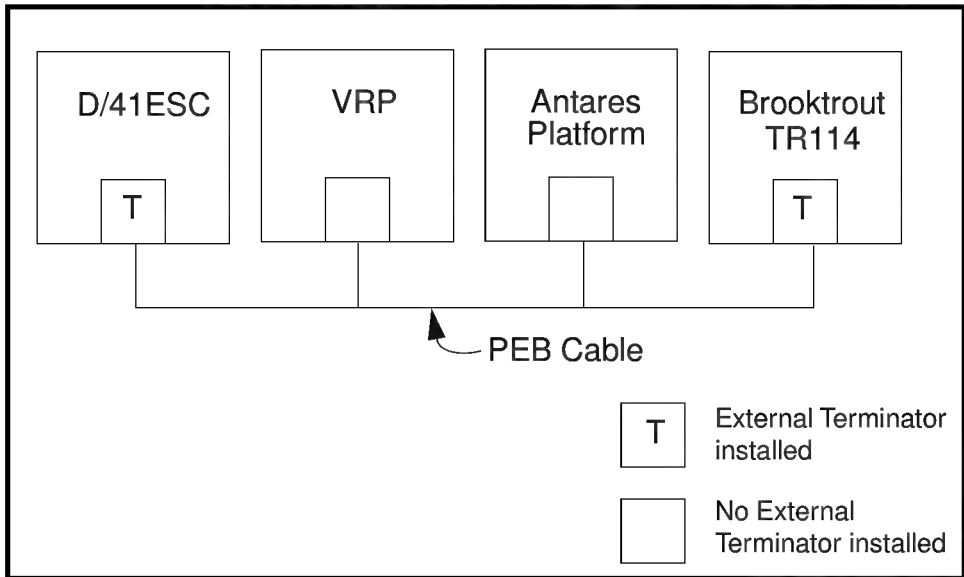
Configuration of Fax, TTS, and ASR with the D/41ESC card

For information on the configuration of the D/41ESC card or the configuration of Fax, Text-To-Speech, and Speech Recognition cards, refer to the *Nortel IVR 2.0/S Installation and Maintenance Guide* (NT6R92AA). The only exception to the configuration procedures is that the system must be configured as a-law for resource sharing.

Note: The system must be configured as a-law rather than mu-law for resource sharing.

The PEB connectivity rules for the D/41ESC card when using Fax, TTS, and/or ASR are shown in the diagram below.

Note: The option card (Fax, TTS, or ASR) can be placed in any order on the PEB bus. The last option card on the PEB bus is the only option card that must be terminated.



Enhanced capacity

Overview

Some of the capacity limits have increased on the AP, MRS/AP, and MRS. The following tables outline these changes. For more information on these changes, refer to the *Nortel IVR 2.5/S Planning and Engineering Guide* (P0869332).

Table 2-1: Changed capacity on the AP

AP	
Item	
User Functions	
Number of C Functions per process	75

Table 2-2: Changed capacity on the MRS/AP

MRS/AP		
Item		
Voice Boards	Max number of cards	Max number of ports
T1	4 D/240SC-T1 (previously 2)	96 (previously 48)
E1 (60 ports)	1 Aculab E1 card (with D/320SC)	60
Option Cards	Max number of cards	Max number of ports
Discrete Speech Recognition	2 VR/160 cards with VRM/40 daughterboards	32 (previously 24)
Continuous Speech Recognition	2 VR/160 cards with VRM/2C daughterboards	16 (previously 12)
Text-To-Speech	4 Antares cards (previously 3)	64* (previously 48)
User Functions		
Number of C Functions per process	75	

* The actual maximum number of TTS ports used is 60, when used with a 60-port E1 Aculab card.

Table 2-3: Changed capacity on the MRS

MRS		
Item		
Voice Boards	Max number of cards	Max number of ports
Loopstart	12 D/41 ESC Cards (previously 6)	48 (previously 24)
Option Cards	Max number of cards	Max number of ports
Discrete Speech Recognition	2 VR/160 cards with VRM/40 daughterboards	32 (previously 24)
Continuous Speech Recognition	2 VR/160 cards with VRM/2C daughterboards	16 (previously 12)
Text-To-Speech	4 Antares cards (previously 3)	64* (previously 48)

* The actual maximum number of TTS ports used is 60, when used with a 60-port E1 Aculab card.

Prompt management tool

Overview

The Digital Prompt Tool provides methods for loading voice prompts or fax files, adding VSN headers to prompts, and trimming silence on the prompts. See Chapter 5, “Digital Prompt Tool,” for more details on the installation and use of this tool.

Protocols

Overview

This section describes protocol enhancements in Nortel IVR 2.5. These include the following:

- North American ISDN PRI support
- Aculab-based E1 CAS and ISDN PRI support

North American ISDN PRI Support

The North American ISDN PRI option adds ISDN Primary Rate Interface functionality to the MRS/Tower, MRS/Rack, and MRS/AP systems, allowing communication with common telephony switches supported in North America.

For detailed information on

- system and hardware requirements
- supported switches and features
- installation

refer to the *Nortel IVR 2.5/S North American ISDN PRI Option Guide* (P0869327).

Aculab-based E1 CAS and ISDN PRI Support

CAS

MRS 3.02.02 supports E1 CAS signaling systems for the following countries and protocols:

- Brazil

- China #1
- Mexico
- Malaysia (Singapore)
- Ericsson E&M (EEMA)
- Belgium

ISDN PRI

MRS 3.02.02 supports the following E1 ISDN PRI network protocol:

- Enhanced DPNSS

Note: You cannot use the DOUT cell with this signaling protocol.

For more information on protocol enhancements, refer to the *Aculab-Based E1 CAS/ISDN PRI Signaling Option Guide* (P0869328).

PDAT cell support for the Japanese language

This release of IVR provides Play Prompts With Data (PDAT) cell support for the Japanese language.

The language that PDAT uses to play data is based on the language selected in the Language field of the LANG cell. The LANG cell must precede the PDAT cell. To play prompts with data in Japanese, set the value of the LANG cell's language field to Japanese. For information on setting the language, refer to "LANG - SET LANGUAGE" in the *IVR Generator 2.0/S Cell Catalog* (P0813810).

External tape drive for emergency backup and restoration

An external tape drive can be connected to the MRS for emergency backup and restoration requirements. For hardware setup and software configuration procedures, see "External tape drive for emergency backup and restoration," on page 8-13.

Hardware improvements

The following cards and features have been introduced for Nortel IVR 2.5/S.

Aculab 60-port E1 card

The following Aculab E1 cards are supported in Nortel IVR 2.5/S:

- Aculab 60-port E1 card (75 ohms) — new for Nortel IVR 2.5/S
- Aculab 30-port E1 card (75 ohms) — supported in Nortel IVR 2.5/S and Nortel IVR 2.01/S.

Both Aculab E1 cards are used in conjunction with the high density D/320SC card, which provides the voice processing capability.

Note: Channel monitoring, on folded and unfolded platforms, can be done by running the IVR Generators system monitor. On the MRS, monitoring of the first 48 channels can also be done using the MRS LED display panel.

50 MHz Text-To-Speech card

The following Text-To-Speech (TTS) cards are supported in Nortel IVR 2.5/S:

- 50 MHz TTS card — new for Nortel IVR 2.5/S

New orders for Nortel IVR 2.5/S systems that include a TTS card will use the 50 MHz TTS card.

- 33 MHz TTS card

The 33 MHz TTS card is still supported in systems that are upgraded to Nortel IVR 2.5/S.

Both cards provide the same functionality in Nortel IVR 2.5/S. The functionality and supported capacity for these cards is the same as was provided by TTS cards in Nortel IVR 2.0/S.

133 MHz processor for AP and MRS/AP

New Nortel IVR 2.5/S systems use a Pentium P5 133 MHz processor in the CPU card for AP and MRS/AP platforms. The 75 MHz and 100 MHz processors are still supported for AP and MRS/AP platforms that are upgraded to Nortel IVR 2.5/S.

MRS platforms use a 486 CPU running at 66 MHz processors, as in Nortel IVR 2.0/S.

PC/Xem card support for the MRS/AP

The PC/Xem 16 port serial card is now supported on the MRS/AP. For information and installation procedures on the PC/Xem card, refer to the *Nortel IVR 2.0/S Installation and Maintenance Guide* (NT6R92AA).

The procedure for installing the PC/Xem card in the MRS/AP is the same as the installation on the AP with the following two exceptions:

- 1 The I/O address is 114 (hexadecimal)
- 2 The memory range is
 - a E0000 – E7999 (For a system not using an Aculab E1 interface)
 - b D8000 – DFFFF (For a system using an Aculab E1 interface)

New model number for AP and MRS/AP 1 Gbyte Seagate hard drive

The model number for the AP and MRS/AP 1 Gbyte Seagate hard drive has changed to ST31055WC. The functionality and capacity of this disk drive is the same as the previous 1 Gbyte Seagate hard drive. The previous model has been manufacturer discontinued but is still supported.

Modems

Nortel IVR 2.5/S supports the use of a 28.8 kbps or 33.6 kbps modem for remote access for MRS/Tower, MRS/Rack and AP platforms. Modems running as low as 9.6 kbps for the MRS or 14.4 kbps for the MRS/AP will still be supported. For modem settings, see “US Robotics 28.8 and 33.6 Data/Fax Modem — settings,” on page 4-18.

MRS/AP TTS/SR Conversion Utility

The MRS /AP TTS/SR Conversion Utility converts an MRS/AP from Text-To-Speech-ready (TTS-ready) to an MRS/AP Speech Recognition-ready (SR-ready) and vice versa. This utility is used only with MRS/AP systems using D/240SC T1, D/41ESC, or Aculab E1 telco interfaces.

Note: Use of this utility requires Nortel support.

Chapter 3: IVR Generator enhancements

Overview

This chapter presents information about features and enhancements in Nortel IVR Release 2.5. The following new features and enhancements are included in this section:

- Text-To-Speech Enhancements
- Enhanced programming features
 - Call Information (CINFO) Cell
- Enhancements to the TONE cell
- New administration tools
 - new ADSI Option
 - new Script File

Text-To-Speech Enhancements

Text-To-Speech (TTS) is implemented through the SAY cell.

In Nortel IVR Release 2.5, the SAY cell supports multiple languages. When a language that is among the supported languages of the L&H/Antares TTS board is specified in a LANG cell, this language is used for Text-To-Speech functions involving the SAY cell. Currently, the L&H/Antares TTS board supports the following languages:

- American English
- French
- German
- Spanish

Enhanced Programming Features

Nortel IVR Release 2.5 adds the Call Information (CINFO) Cell for application development and deployment and adds new capabilities to the TONE Cell.

Call Information (CINFO) Cell

Nortel IVR Release 2.5 includes the CINFO cell (Call Information), which expands the type of information your application can access from the telephone network. The field *Type of Information* in the CINFO cell enables you to designate the type of telephone-network data for retrieval from previously stored information from the time when the call is initiated.

The network data includes ANI and DNIS information and expands IVR Generator functionality to include called line ID information, call diversion codes, and the number from which the call is diverted.

The telephone network can pass this information to your application during the initiation of an incoming call. IVR Generator software then stores this information internally until either the end of the call or until the execution of the DOUT, BOUT, or COUT cell, at which time the existing data is overwritten.

Use the CINFO cell to retrieve telephone-network data by indicating the type of data for retrieval and the buffer for storage of the retrieved information. See Table 3-1, "CINFO parameters," on page 3-7 for information about valid values for the *Type of Information* field .

Note: If the type of information requested by the CINFO cell does not match the data stored internally, then the call flow follows the NO DATA branch from the CINFO cell. Figure 3-1, "CINFO cell," on page 3-3 illustrates the parameters in the CINFO cell.

Figure 3-1: CINFO cell

The screenshot shows a 'CINFO Parameters' dialog box. It contains the following fields and controls:

- Called:** A text box containing 'CINFO'.
- Call Information:** A label next to a text box containing 'Call Information'.
- Comments:** A text box.
- Call AML Enabled?:** A section with two radio buttons: 'Yes' (selected) and 'No'.
- Call Area Information:** A text box.
- Type of Information:** A text box containing '0' and a dropdown arrow.
- Information Buffer:** A text box containing 'DIGITS' and a dropdown arrow.
- Buttons:** 'Apply', 'Cancel', and 'Help' at the bottom.

The information that follows provides additional details as well as descriptions of the CINFO cell parameters.

The CINFO cell allows an application to access data that is stored in Nortel IVR Release 2.5. The information is retrieved from the telephone network during either the initiation of an incoming call or the execution of an outgoing call through the DOUT, BOUT, or COUT cells.

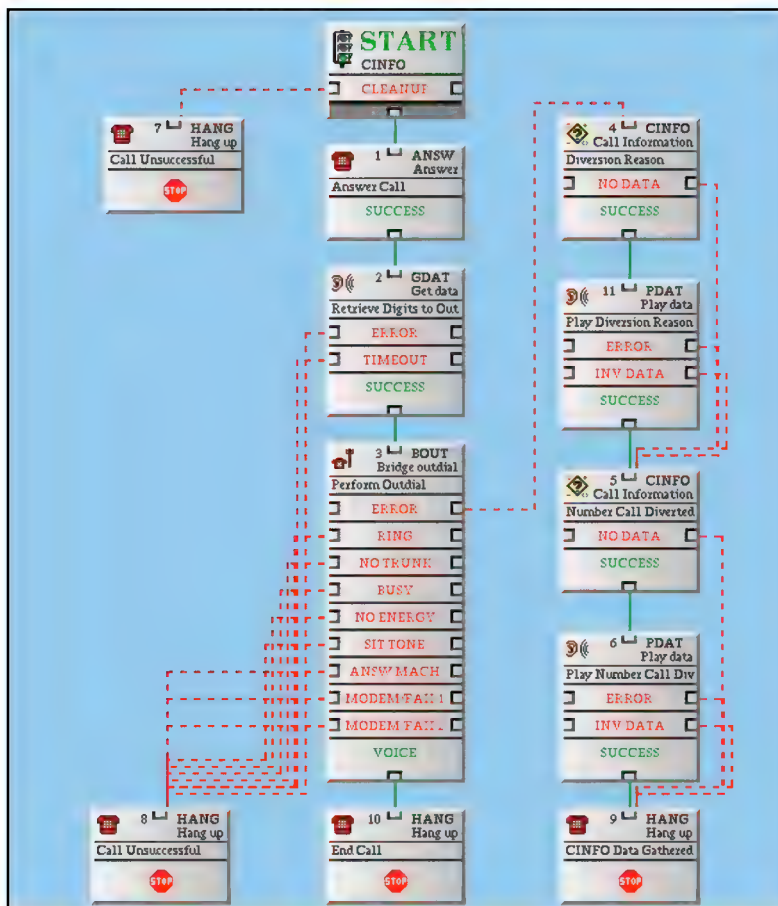
IVR Generator software stores the telephone-network information until either the end of the call or the completion of the outdial, at which time the telephone-network information from the outdial overwrites the data stored during the initiation of the incoming call. The CINFO cell retrieves the telephone-network data by indicating the type of data for retrieval and a buffer in which to store this information.

Note 1: The field *Type of Information* in the CINFO cell contains the category of telephone-network data for retrieval (ANI digits, DNIS digits, Diversion Reasons, or Calling-Line Category). The information available for retrieval is dependent on the telephone network.

Note 2: If the type of information requested by the CINFO cell does not match the data stored internally, the call flow follows the NO DATA branch from the CINFO cell.

Figure 3-2, “Application Using CINFO cells,” on page 3-4 shows an application that demonstrates the use of the CINFO cell. Including multiple CINFO cells in an application can provide a significant amount of telephone-network information about a call. Each CINFO cell in Figure 3-2 provides information that is played to the caller in the corresponding PDAT cell about an error that can occur during the execution of the BOUT cell.

Figure 3-2: Application Using CINFO cells



The first cell, ANSW, answers the call and passes the call flow to the GDAT cell. If successful, GDAT plays a message, if specified, and gathers the digits from the caller for an outdial, which is performed in this example by the BOUT cell.

If an error occurs during the execution of the BOUT cell, the application shown in Figure 3-3, “CINFO Parameter Page Retrieving Diversion Reason,” on page 3-6 passes the call flow to two successive CINFO cells. Figures 3-1 and 3-2, which present the parameter pages for the CINFO cells, show how the CINFO cell in Figure 3-3 retrieves the diversion reason (Field type 2). The parameter page in Figure 3-4 retrieves the number from which the call is diverted (Field type 4).

Note: The parameter *Type of Information* contains a code that indicates the type of data for retrieval and the buffer for storing the retrieved information. You can enter the code directly into this field, or you can store the information in a buffer and then reference the buffer in the field *Type of Information* in the CINFO cell.

The available types and the corresponding codes follow:

Field	Type
0	DNIS information
1	ANI information
2	Diversion reasons
3	Calling-line category
4	Number from which the call is diverted

Buffers Used: None

Buffers Updated

CINFO updates data in the buffer specified in the field *Information Buffer*.

Figure 3-3: CINFO Parameter Page Retrieving Diversion Reason

The screenshot shows a Windows-style dialog box titled "CINFO Parameters". Inside the dialog, there is a section labeled "CINFO" with a "Call Information" icon. Below this, there is a "Diversion Reason" text field. A "Comments" text field is located below the "Diversion Reason" field. Further down, there is a "Call event Enabled?" checkbox, which is currently checked, with "Yes" and "No" radio buttons. Below this, there is a "Call event Information" text field with a "Show" button. The "Type of Information" text field is set to "C" with a dropdown arrow. The "Information Buffer" text field is set to "PATH" with a dropdown arrow. At the bottom of the dialog, there are three buttons: "Apply", "Cancel", and "Help".

Figure 3-4: CINFO Parameter Page Retrieving the Number from Which the Call is Diverted

The screenshot shows a 'CINFO Parameters' dialog box. It contains several input fields and a dropdown menu. The 'Call ID' field is set to 'CINFO'. The 'Number Call Diverted From' field is empty. The 'Comments' field is empty. The 'Call Audit Enabled?' field has a dropdown menu with 'Yes' selected and 'No' as an option. Below that is a 'Call Audit Information' field with a dropdown menu showing '...'. The 'Type of Information' field has a dropdown menu showing '4'. The 'Information Buffer' field has a dropdown menu showing 'DIGITS'. At the bottom are 'Apply', 'Cancel', and 'Help' buttons.

Table 3-1: CINFO parameters

Parameter	Initial Value	Explanation
Call Audit Enabled?	NO	Determines if this cell logs the following information to the Call Audit statistics file, audit_stat.d: • Application Name • Cell Name • Cell Number • Date and Time of Cell Execution • Contents of the Cell Comment Field • Contents of the Call Audit Information buffer

Table 3-1: CINFO parameters

Parameter	Initial Value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the file audit_stat.d .
Type of Information	0	Code that indicates the type of data for retrieval from the stored telephone-network information. You can enter the code directly into this field, or you can store the information in a buffer and then reference the buffer in the field <i>Type of Information</i> in the CINFO cell. The available types and the corresponding codes follow: Code Type 0 DNIS information (Digits) 1 ANI information (Digits) 2 Diversion Reasons (Digits) 3 Calling Line Category (Digits) 4 Number From Which Call Is Diverted (Digits) The definitions for the Diversion Reason codes and the Calling Line Category codes follow this table.
Information Buffer	DIGITS	Buffer in which CINFO stores the information collected in the field <i>Type of Information</i> .

Diversion Reasons

In each of these cases, the call is released and the diversion reason code is placed in the buffer `INFORMATION_BUFFER`.

- 1** The outgoing call is immediately diverted to another PBX.
- 2** The outgoing call is diverted to another PBX on detection of a busy tone.
- 3** The outgoing call is diverted to another PBX on detection of a ring no answer.
- 4** The incoming call is immediately diverted.

- 5** The incoming call is diverted on detection of a busy tone.
- 6** The incoming call is diverted on detection of a ring no answer.
- 7** The outgoing call is immediately diverted to another party on the same PBX.
- 8** The outgoing call is diverted to another party on the same PBX on detection of a busy tone.
- 9** The outgoing call is diverted to another party on the same PBX on detection of a ring no answer.

Calling Line Categories

- 0** No calling/called line category information supplied
- 1** Ordinary extension
- 2** 10 pps decadic (pulse dialing) extension
- 3** Digital Access Signaling System No. 2
- 4** Public Switched Telephone Network
- 5** Signaling System Multifrequency No. 5
- 6** Operator
- 7** Network
- 8** Party is involved in a conference

NEXT Cell**Table 3-2: Next Cell**

NEXT Cell	Explanation
Success	CINFO successfully retrieved and stored the requested data in the selected buffer.
No Data	CINFO could not retrieve the requested data type due to one of three possible conditions: • The telephone network accessed does not provide this information. • A problem occurred during the initiation of the call to prevent the data retrieval. • An invalid type is entered in the field <i>Type of Information</i>. Note that if the type of information requested by the CINFO cell does not match the data stored internally, the call flow takes this branch.

Enhancements to the TONE cell

In addition to the tones supported in previous versions, Nortel IVR Release 2.5 supports the following additional tones on MRS/AP and MRS systems: beep tones, confirmation tones, and DTMF D tones. The complete list of currently supported tones includes the following:

Tone Parameters	Tone Types
BEEP	beep tone
BUSY	busy tone
RING	ring tone
DIAL	dial tone
REORDER	reorder tone
CONFIRMATION	confirmation tone
DTMF D	DTMF D tone

Refer to the *IVR Generator 2.0/S Cell Catalog* (P0813810) for a description of the TONE cell.

International system prompts

Offset ranges

Language system prompts purchased from Nortel are configured in specific offset ranges. For example, the prompt *one (feminine)* in Spanish is 298 at offset 1000. This combines to make 1298. This prevents confusion with *one (feminine)* in German which is also 298, but offset at 2000 (combines to 2298).

US English	0 – 499
Canadian French	500 – 999
Parisian French	500 – 999
Spanish	1000 – 1499*
Italian	1500 – 1999
German	2000 – 2499*
Japanese	2500 – 2999
UK English	3000 – 3499

* Changed

Installing international system prompts

Use the following procedure and the two appropriate diskettes to install the system prompts for the chosen language.

Use the table below to determine which diskettes are required for the installation.

Language	Diskettes label
US-English	MRS Version 3.00.00 US-English System Prompts
Canadian French	MRS Version 3.00.00 French (Canadian) System Prompts
UK-English	MRS Version 3.02 UK-English System Prompts

Language	Diskettes label
Italian	MRS Version 3.02 Italian System Prompts
French	MRS Version 3.02 French (France) System Prompts
Spanish	MRS Version 3.02 Spanish System Prompts
German	MRS Version 3.02 German System Prompts
Japanese	MRS Version 3.02 Japanese System Prompts

Procedure 3-1: Installing International System Prompts

- 1 Log in as service.
- 2 Type **files restore** and press **<Enter>**.
- 3 Insert the first diskette for the language you have chosen into the floppy drive.
- 4 Press **<Enter>** to extract the files.
- 5 When prompted, remove the first diskette and insert the second diskette into the drive. Press **<Enter>**.
- 6 When the extraction is done, remove the diskette from the floppy drive.

Additional standard prompts

IVR Generator 2.5/S includes additional standard prompts. They are listed in the following table.

Table 3-3: Additional standard prompts

Prompt Number	Language	OFFSET	Prompt
298	French German Italian Spanish	500 2000 1500 1000	one (feminine)
299	French Italian	500	twenty-one (feminine)
300	German	2000	eins
301	Spanish	1000	one hundred

Table 3-3: Additional standard prompts

Prompt Number	Language	OFFSET	Prompt
302	Spanish	1000	two hundred
303	Spanish	1000	three hundred
304	Spanish	1000	four hundred
306	Spanish	1000	six hundred
307	Spanish	1000	seven hundred
308	Spanish	1000	eight hundred
309	Spanish	1000	nine hundred
311	Japanese	2500	hours
312	Japanese	2500	minutes
313	Japanese	2500	months
314	US English UK English	0 3000	over
316	Japanese	2500	hundred million
317	Japanese	2500	day
319	Japanese	2500	three thousand
320	Japanese	2500	eight thousand
321	Japanese	2500	1 day
322	Japanese	2500	2 day
323	Japanese	2500	3 day
324	Japanese	2500	4 day
325	Japanese	2500	5 day
326	Japanese	2500	6 day
327	Japanese	2500	7 day

Table 3-3: Additional standard prompts

Prompt Number	Language	OFFSET	Prompt
328	Japanese	2500	8 day
329	Japanese	2500	9 day
330	Japanese	2500	7
331	Japanese	2500	9
332	Japanese	2500	1 minute
333	Japanese	2500	6 minute
334	Japanese	2500	8 minute
335	Japanese	2500	10 minute

ADSI Option

Nortel IVR Release 2.5 offers an option to provide visual access to telephone-based transactions through the implementation of ADSI capabilities for callers with ADSI-capable phones. IVR Generator software can help service providers quickly bridge the gap between existing residential services and new multimedia services by using the ADSI facility.

IVR Generator software provides a graphical interface for the development of ADSI applications. Implemented today through the User Function facility, a new set of functions is available to the application developer in order to implement ADSI applications using IVR Generator software.

Table 3-4: ADSI User Function Facility

User Function	Function Code	Action
ADSCON	1	Establishes a communications session with an ADSI telephone.
ADSDIS	2	Terminates a communications session with an ADSI telephone.
ADSKEYS	3	Defines and downloads sets of soft keys to be used by the ADSINFO and ADSMENU User functions in the application. Soft keys are used as selection buttons for menus, navigational control, editing capabilities, and so on.
ADSMENU	4	Downloads a list of menu options to an ADSI telephone.
ADSINFO	5	Displays information on the telephone for the caller.
ADSDATA	6	Presents a form to the caller that the caller can complete and send back to the IVR Generator application.

A description of each function follows. A synopsis of each function as well as information about input buffers, output buffers, and reply codes is provided.

Note: Type the selected information for the Input Buffers exactly as it is displayed in brackets. For example:

Disable Key on Key Press? [YES, NO]

Type either **YES** or **NO**, as appropriate.

Function Code 1: ADSCON

Description: Creates a Voice Storage number (VSN) that contains an ADSI databurst consisting of one message that contains only a CONNECT SESSION parameter packet. Provides the VSN to the MRS for later use in the application. A temporary VSN is created; its handle is passed back in an output buffer.

Input Buffers: None

Output Buffers:

Buffer 00 : Specifies the VSN where the databurst is stored on the VRU.

Reply Codes:

- 0 : Indicates that a VSN is created.
- 1 : Indicates that a VSN is not created.

Function Code 2: ADSDIS

Description: Terminates an ADSI session with a telephone. Creates a VSN that contains an ADSI databurst consisting of one message that contains only a DISCONNECT SESSION parameter packet. Provides the VSN to the VRU for later use in the application. A temporary VSN is created; its handle is passed back in an output buffer.

Input Buffers: None

Output Buffers:

Buffer 00 : Specifies the VSN where the databurst is stored on the VRU.

Reply Codes:

- 0 : Indicates that a VSN is created.
- 1 : Indicates that a VSN is not created.

Function Code 3: ADSKEYS

Description: Downloads soft keys to an ADSI display telephone. Creates a VSN that contains an ADSI databurst, which consists of one message that contains multiple LOAD SOFT KEYS parameters in order to define the function keys needed for a menu or for an information display. Provides the VSN to the VRU for use in the application. A temporary VSN is created; its handle is passed back in an output buffer.

You can define the following sets of soft keys and then load them into the display phone for future use: MENU, INFO1, and INFO2.

You can disable a soft key to prevent the caller from accidentally pressing the key more than once by entering “YES” in the second buffer. Nortel recommends that you enter “YES” to disable a soft key.

Define function keys in a buffer as a label string starting in the first position of a buffer up to a maximum of seven characters, followed by '/' to signify its end. Then enter the DTMF digits to be returned if pressed. Enter the digits as the last characters in the buffer. The label “NULL” indicates an empty soft key.

Examples of key definitions include the following:

Oper/0	Dial ZERO
Oper/0#	Dial ZERO followed by the POUND
Return/*	Dial STAR
Line/L#	Send a two-digit line number followed by POUND
NULL	Blank key; no digits

You can enter a maximum of 7 characters for a label and a maximum of 10 characters from the following set: [0,1,2,3,4,5,6,7,8,9,#,*,L].

“L” indicates the two-digit line number of the highlighted line.

Input Buffers:

Buffer 00	:	Soft Key Set Name [MENU, INFO1, INFO2]
Buffer 01	:	Disable Key on Key Press? [YES, NO]
Buffer 02	:	Soft Key 1 or SELECT if menu
Buffer 03	:	Soft Key 2
Buffer 04	:	Soft Key 3
Buffer 05	:	Soft Key 4
Buffer 06	:	Soft Key 5
Buffer 07	:	Soft Key 6

Note: Type the selected information for the Input Buffers exactly as it is displayed in brackets. For example:

Soft Key Set Name [MENU, INFO1, INFO2]
Type either **MENU**, **INFO1**, or **INFO2**.

Output Buffers:

Buffer 00	:	VSN where the databurst is stored on the VRU.
-----------	---	---

Reply Codes:

0	:	Indicates that a VSN is created.
1	:	Indicates that a VSN is not created.

Function Code 4: ADSMENU

Description: Creates and downloads a list of menu options to an ADSI telephone. Creates a VSN that contains an ADSI databurst that consists of one message. Each VSN includes multiple LOAD VIRTUAL DISPLAY parameters, which define the selectable menu items to be displayed. The parameter is followed by a LINE CONTROL parameter, which directs the software to display all the information, then the VSN is provided to the VRU for later use in the application. A temporary VSN is created; its handle is passed back in an output buffer.

Note: Define the function keys during an ADSKEYS User function call that defines the MENU set.

Input Buffers:

Buffer 00	:	Menu title
Buffer 01	:	Menu item 1
Buffer 02	:	Menu item 2
Buffer 03	:	Menu item 3
Buffer 04	:	Menu item 4
Buffer 05	:	Menu item 5
Buffer 06	:	Menu item 6
Buffer 07	:	Menu item 7
Buffer 08	:	Menu item 8
Buffer 09	:	Menu item 9

Note: Enter any text string for the menu item fields.

Output Buffers:

Buffer 00	:	VSN where the databurst is stored on the VRU.
-----------	---	---

Reply Codes:

- 0 : Indicates that a VSN is created.
- 1 : Indicates that a VSN is not created.

Function Code 5: ADSINFO

Description: Displays information on the telephone for the caller. Creates a VSN that contains an ADSI databurst, which consists of multiple messages. Each VSN contains multiple LOAD VIRTUAL DISPLAY parameters that define lines of information to display. The last message is a LINE CONTROL parameter, which directs the software to display all the information and then provides the VSN to the VRU for later use in the application. A temporary VSN is created; its handle is passed back in an output buffer.

Input Buffers:

- Buffer 00 : Clear Screen First? [YES, NO]
- Buffer 01 : First Line to Update
The value for this buffer is usually 1.
- Buffer 02 : Soft Key Set name [INFO1, INFO2]
- Buffer 03 : Info Line 1 (Enter any text string.)
- Buffer 04 : Info Line 2 (Enter any text string.)
- Buffer 05 : Info Line 3 (Enter any text string.)
- Buffer 06 : Info Line 4 (Enter any text string.)
- Buffer 07 : Info Line 5 (Enter any text string.)
- Buffer 08 : Info Line 6 (Enter any text string.)
- Buffer 09 : Info Line 7 (Enter any text string.)

Note: Type the selected information for the Input Buffers exactly as it is displayed in brackets. For example:

Soft Key Set name [INFO1, INFO2]

Type either **INFO1** or **INFO2**.

Output Buffers:

Buffer 00 : VSN where the databurst is stored on the VRU.

Reply Codes:

- 0 : Indicates that a VSN is created.
- 1 : Indicates that a VSN is not created.

Function Code 6: ADSDATA

Description: Presents a form that callers can complete and send back to the IVR Generator application. Creates a VSN that contains an ADSI databurst, which consists of two messages.

The first message contains multiple LOAD SOFT KEYS parameters that define the function keys required to edit the input data: Clear, Backspace, and Send.

The second message contains the following parameters:

- CLEAR TYPE AHEAD, which empties the contents of the current input area.
- INPUT FORMAT, which defines the data pattern.
- LOAD VIRTUAL DISPLAY, which places the data prompt on the Communications page.

A parameter LINE CONTROL, directs the software to display all the information and then provides the VSN to the VRU for later use in the application. A temporary VSN is created; its handle is passed back in an output buffer.

When you execute the Send command, the screen is restored to its original information.

Input Buffers:

Buffer 00	:	Form Line 1 (Replace each '*' with the appropriate digit.)
Buffer 01	:	Form Line 2 (Replace each '*' with the appropriate digit.)
Buffer 02	:	Form Line 3 (Replace each '*' with the appropriate digit.)
Buffer 03	:	Input Line (Active form line number for input)
Buffer 04	:	Input Style 2 [LEFT_TO_RIGHT, RIGHT_JUSTIFIED, SECURE, ALPHA]
Buffer 05	:	Termination Key [0-9, *, #, or NONE]
Buffer 06	:	Edit Key Labels (Three labels separated by '/')
Buffer 07	:	Soft Key 4
Buffer 08	:	Soft Key 5
Buffer 09	:	Soft Key 6

Note: You can leave some input buffers empty. The default settings for each of these buffers follows:

BUFFER	DEFAULT
Buffer 4	: LEFT_TO_RIGHT
Buffer 5	: NONE
Buffer 6	: Accept/BkSpace/Clear
Buffer 7	: Indicates that there are no user soft keys.
Buffer 8	: Indicates the existence of one user soft key.
Buffer 9	: Indicates the existence of two user soft keys.

Output Buffers:

Buffer 00	:	VSN where the databurst is stored on the VRU.
-----------	---	---

Reply Codes:

- 0 : Indicates that a VSN is created.
- 1 : Indicates that a VSN is not created.

These ADSI User functions will be implemented as cells in a future release of IVR Generator software.

New script file

IVR Generator software includes a script file, `vtekhost_adm`, in the directory `user_data`. If you use the Host communications option, then this file is available. Customize this script file for your system in order to manage your communications start-up procedure.

Chapter 4: User issues

Overview

This section provides information that users should be aware of, or that is required to resolve some reported user issues.

Supported SQL versions

With Nortel IVR 2.5/S, a relational database interface (Informix, Sybase, Oracle, or Ingres) is supported in addition to the local informational database. The relational database engine must be purchased by the customer. “SQL” cells are included, which provide an SQL interface into the database for SELECT, INSERT, UPDATE, DELETE, and COUNT capabilities.

Note: Nortel IVR 2.5/S systems do not include CD-ROM support; if you order an SQL software package, specify the software media as QIC tape.

The following table indicates the supported SQL database versions

Table 4-1: SQL database versions

Database	Local Database Version
Informix-SE	5.02
Ingres	6.4 (subrelease 04 or 05)
Oracle	7.0 or 7.1
Sybase	10.0 (subrelease 02 or 03)

Note 1: In order to use Sybase 10, SCO patches UOD381A and NET382E must be installed on the SCO operating system. To install these patches, see “Installing SCO Support Level Supplements required to support Sybase 10.0,” on page 6-54.

Note 2: In order to use Oracle 7.0 or 7.1, SCO patches UOD374A and EFS139OS must be installed on the SCO operating system. To install these patches, see “Installing SCO Support Level Supplements required to support Oracle,” on page 6-56.

Accessing a remote Sybase database

In order for your IVR applications to access remote Sybase databases, you need to install the `sybinit` utility on the Sybase server. Refer to your Sybase documentation for information on configuring your Sybase database. You will require the following information:

- the name and TCP/IP address of the remote node
- the path to the database

To access the remote Sybase database, follow Procedure 4-1, “Accessing a remote Sybase database.”

Procedure 4-1: Accessing a remote Sybase database

- 1 On the AP, set the environment variable `DSQUERY` to the value found in `$Sybase/interfaces` on the Sybase server.
- 2 Ensure that the Sybase server is running.
- 3 Verify that you have remote database access. In an Xterm window, or at the prompt in the alternate screen, type `isql -s server_name` and press **<Enter>**.

The `server_name` is the same name that you assigned to `DSQUERY` in step 1.

- 4 At the prompt, type `select * from table` and press **<Enter>**.

The word `table` is the name of the database table you are accessing.

The Sybase server should respond with remote database information.

The Sybase *System Administration Guide* contains detailed information on accessing Sybase databases remotely.

Hang ups not detected by PLAY, PDAT, GDAT, COUT cells

If the caller hangs up instead of entering digits, the PLAY, PDAT, GDAT, and COUT cells do not recognize the hang up, and the cleanup branch is not taken.

If you use these cells, include cells that check the number of digits in your application. This way, if a customer hangs up, these cells recognize the hang up and route it to the HANG cell.

Reports that require landscape printing

The following reports are too wide for portrait printing:

- Call Detail Report (91 columns wide)
- Transaction Report (132 columns wide)

Use landscape printing to print these reports.

MRS Disk Mirroring

Nortel supports a maximum of two hard disks only in a disk-mirrored system.

Hard disk partitioning



CAUTION **Risk of failure**

Users should not alter the hard disk partition of the MRS, MRS/AP, or AP except as directed by Nortel procedures. Failure to comply with this instruction may result in the failure of failure recovery mechanisms as outlined in Chapter 9, "Failure recovery," in this guide.

Simultaneous use of run-time systems for development purposes not supported



CAUTION **Risk of service interruption**

Simultaneous use of a run-time system for development purposes is not supported.

If you do development work on a run-time system, you risk impacting production applications that are running on your system.

Deleting VSNs in ADSI

ADSI functions build a VSN within the call flow of an application. These VSNs are not automatically deleted by the system. To delete the ADSI VSNs, add a DMSG cell in the call flow directly following the PLAY cell of the application you are building.

ACD Logon/Logoff requirements

The following changes are recommended for the M1 for ACD Logon/Logoff.

Resolution to these issues were implemented on the MCS FS system.

- a** ACD Load Management Package (C2), #43 with Mnemonic LMAN, is required to support the Nortel IVR 2.5/S ACD Logon/Logoff feature.

Package Dependencies:

BACD (40)
ACDB (41)
ACDC (42)
ACDA (45)

- b** In order to support a SPRE code that is longer than one digit, the user requires the Flexible Feature Code package on the M1 (Package #139, Mnemonic FFC).

Package Dependencies:

CCOS (81)
SS5 (73)

The CCOS package is required for the Electronic Lock feature; the SS5 package is required if you are using FFC's on the 500 telephone.

- c** The defaults for the ACD Logon/Logoff parameters should be set as follows:

`Delaylen = 10 Seconds`

`Number of seconds to delay for ACD logon = 60 Seconds.`

Loopstart Trunk Parameter change recommendation

The loopstart Trunk parameter "r_ird", which defines the inter-ring delay for the ring cycle, may require modification. When the telephone network connection from Nortel IVR 2.5/S to the M1 PBX is loopstart, and if the system is expected to work under either of the two scenarios listed below, then the inter-ring delay should be modified.

- The MRSs are working close to or at their full capacity.
- A particular MRS is close to or at its full capacity because of the ACD Queue setup.

Under these conditions, the parameter “r_ird” is recommended to be set to 10 instead of 80, which is the default setting. This parameter is under /sci/maint/params on the MRS and can be modified by logging in to the MRS as “service” or “admin”. Also, the parameter “ringcnt” must be set to the default value 1. The “ringcnt” parameter can be found on MRS under the same path as the “r_ird” parameter.

Note: r_ird = 10 represents one second of inter_ring delay and r_ird = 80 is for eight seconds of inter_ring delay.

Default IP Address and Node Names

The Nortel IVR 2.5/S systems are configured by the manufacturer with these default node names and IP addresses:

Application Processor:

```
Node Name      : nortel
IP Address     : 128.1.1.1
Netmask        : 255.255.0.0
Broadcast Address : 128.1.255.255
```

MRS #n:

```
Node Name      : VKxxxxX
IP Address     : 128.1.1.11n
Netmask        : 255.255.0.0
```

Where n = 1, 2, ... and xxxxX are five digits for the MRS/TOWER; xxxx are four digits and X = R for the MRS/RACK. On the AP, this information is in file /etc/hosts. On the MRS/TOWER and MRS/RACK, this information can be found under /sci/admin/hosts>list.

End users should not change the node names of the MRSs for maintenance and troubleshooting purposes. IP address changes may be inevitable, however, and the new IP addresses should be copied down before a reinstallation or an upgrade of the IVR Generator and/or MRS software. The installation/upgrade may restore these IP addresses to the default values.

MRS External Alarm Interfaces

Figure 4-1: MRS/Tower and MRS/AP External Alarm interface

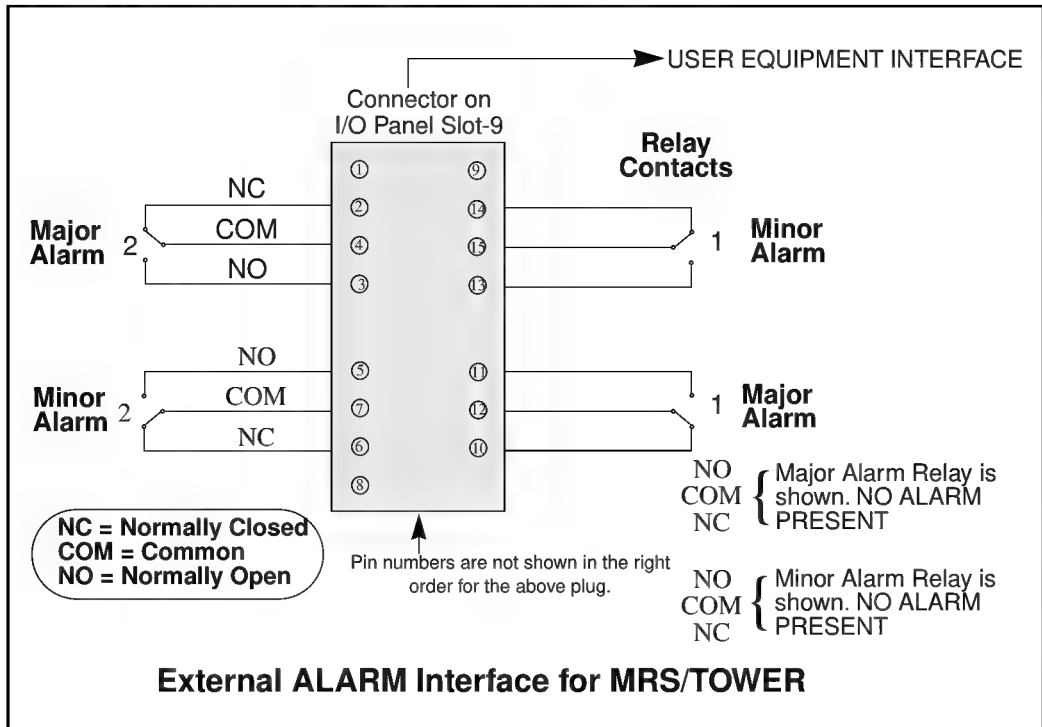
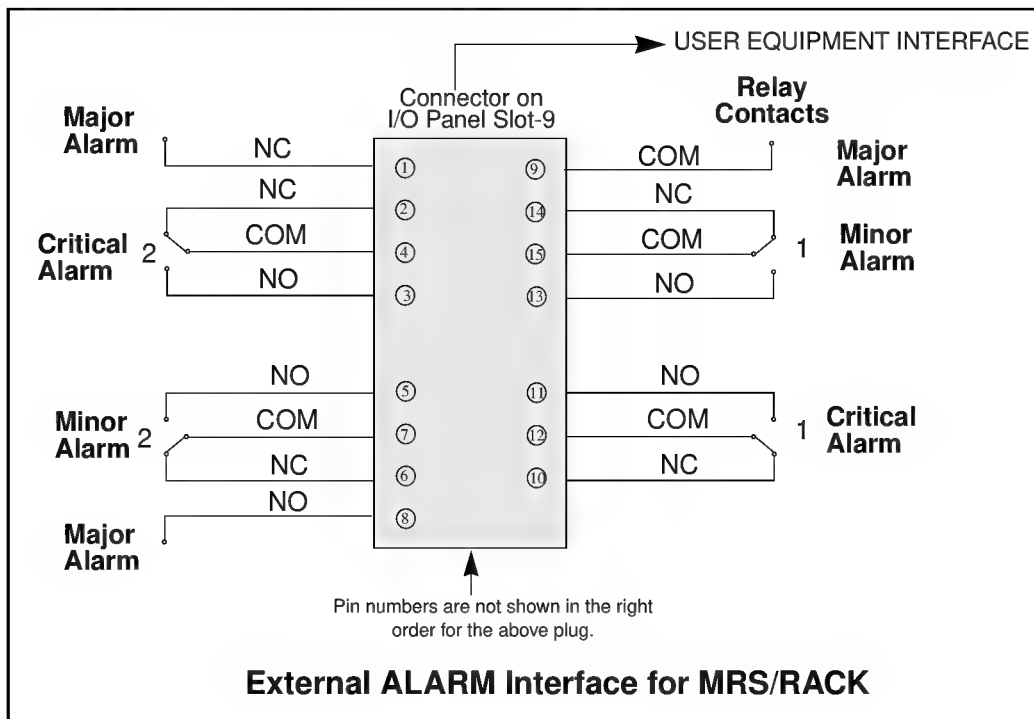


Figure 4-2: External Alarm Interface for MRS/RACK



User Functions

These procedures supercede the previous versions contained in Chapter 9, “Creating User Functions,” in the *IVR Generator 2.0/S Application Development Guide* (P0813809).

Building a New User Function

To build a new user function, use the following procedure.

Procedure 4-2: Building a new user function

- 1 At the shell prompt, type the following command:

```
touch usr_func.c usr_main.c
```

(where *usr_func* is the name of the user function you wish to create) and press <Enter>.

Testing a User Function

To test the user function in interactive mode, use the following procedure.

Procedure 4-3: Testing a user function

- 1 Type the command `usr_func -i`
(where *usr_func* is the name of the user function you wish to test) and press <Enter>.

Promoting the User Function

To promote the user function to the exe directory, use the following procedure.

Procedure 4-4: Promoting the user function

- 1 Type

```
make -e -f usr.make CC_LOCAL_FLAGS="-DVERSION_105"  
NAME=usr_func promote
```

(where *usr_func* is the name of the user function you wish to create) and press <Enter>.

Note: User functions cannot be used by an application unless an executable copy resides in the exe directory.

3270/5250 SNA/SDLC card—pinout and pin assignments

Overview

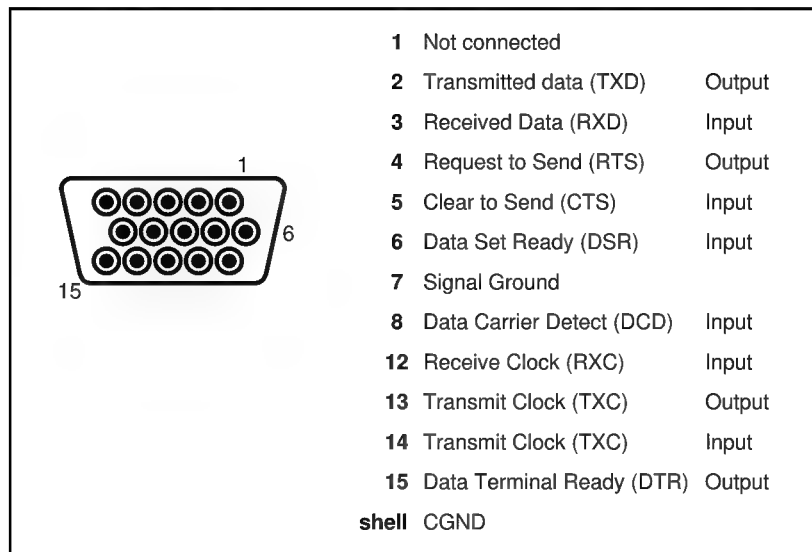
The SYNC/570 has two high-density 15-pin D-subminiature female port connectors. The connectors provide an EIA 232D interface and serial data transmission and reception.

Your application may specify the cable configuration required for connecting modems to a computer. If so, you should follow the recommendations. If cable configuration is not specified, you can use the cable types discussed below. Cables for use with synchronous modems need a minimum of eleven wires plus a shield.

DB-15 Connectors and cabling

The DB-15 connectors are compatible with EIA-232-D devices. Figure 4-3, “DB-15 female connector and connector pin assignments,” shows the pinout and pin assignments for the DB-15 connectors on the ARNET SYNC/570 card.

Figure 4-3: DB-15 female connector and connector pin assignments



The cables included in the SYNC/570 package have a DB-15 male connector on the board end, and a DB-25 male connector on the peripheral end. The pinout and pin assignments for the DB-25 connector are shown in Figure 4-4, "Cable D-25 male connector and connector pin assignments." The male loopback connector wiring diagram is shown in Figure 4-5, "SYNC/570 DB-15 male loopback connector wiring diagram," on page 4-12.

Figure 4-4: Cable D-25 male connector and connector pin assignments

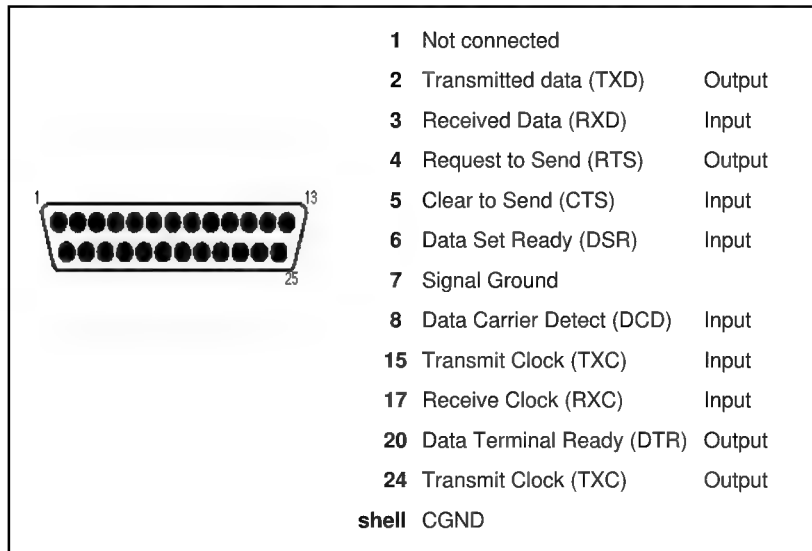


Figure 4-5: SYNC/570 DB-15 male loopback connector wiring diagram



TTS — American English supplement

This section describes the use of TTS with American English. It introduces the phonetic alphabet, discusses the control sequences, and lists some language-specific notes.

Phonetic alphabet

The following table lists TTS characters and the American English equivalents.

Table 4-2: American English phonetic alphabet

Vowels and diphthongs			Consonants		
TTS character	As in:		TTS character	As in:	
A	fAl	fall	p	pIt	pit
a	gat	got	b	bIt	bit
æ	kæt	cat	t	tap	top
I	fIl	fill	d	dIg	dig
i	fil	feel	k	kæt	cat
U	fUl	full	g	gat	got
u	ful	fool	f	fæt	fat
o	dør	door	v	væt	vat
E	fEl	fell	s	sil	seal
e	kert	curt	z	zil	zeal
^	k^t	cut	T	TIn	thin
\$	\$l@	allow	D	DEn	then
J	fJl	fail	S	Slp	ship
@	f@l	foul	Z	liZ\$r	leisure
Y	fYl	file	l	lIp	lip

Table 4-2: American English phonetic alphabet

Vowels and diphthongs			Consonants		
TTS character	As in:		TTS character	As in:	
y	fyl	foil	r	rIp	rip
O	gOl	goal	j	jEs	yes
			w	wY	why
			h	hæt	hat
			m	mæn	man
			n	n^t	nut
			N	rIN	ring
			? (glottal stop)	?it	eat

Note: All TTS characters specified in the previous table are extended ASCII.

The control sequences

The American English TTS system supports all control sequences as described in the *Text to Speech Option Release Notes (MRS 3.0)* (P0813822).

The American English TTS system also supports a speech control sequence which allows the user to specify the grammatical function of a word.

Syntax: <ESC>@?

where ? can be one of the following parts of speech:

N	noun
J	adjective
A	adverb
V	verb
R	past participle

This sequence can be especially useful in ambiguous cases, such as the following examples:

<ESC>@N record (the noun record)

versus

<ESC>@V record (the verb record)

and

I <ESC>@V read a book (infinitive)

versus

I <ESC>@R read a book (past participle)

Notes on the American English TTS system

This section reviews a number of specific cases for the American English Text-To-Speech system.

Telephone numbers

The American English TTS system supports telephone numbers in the following formats:

1-555-4118

(617) 555-9209

716-555-4568

1 555-5555

In the examples below, the word “dash” is pronounced between the numbers:

(800) 555-1234

555-1234

Bank account numbers

To have a bank account number pronounced correctly (digit by digit), use hyphens between groups of digits, or switch to the *spell* mode (<ESC>M0) as shown in the following examples:

123456-987-123456

000-1234567-87

Dates

The system reads dates in the format

Month (1 or 2 digits) /Day (1–31) /Year (2 or 4 digits)

as shown in the following examples:

5/27/92

05/27/1992

When specifying dates, use a comma after the day to have it pronounced as an ordinal number. For example, May 27, 1992 is pronounced as May twenty-seventh nineteen ninety-two.

Commas are optional in numbers larger than 1,000.

Note: Numbers ranging from 1,100 to 9,999 are treated as cardinal numbers when a comma is written, and as years when a comma is *not* written. For example, 1,993 is pronounced as one thousand nine hundred and ninety-three; 1993 is pronounced as nineteen ninety-three.

Currencies

The American English TTS system handles most currency indications, provided they precede the numeral. For example, \$40 is pronounced forty dollars; £200 is pronounced two hundred pounds; and ¥5000 is pronounced five thousand yen.

Abbreviations

The American English TTS system contains a dictionary with the most common abbreviations, such as: e.g., i.e., Mrs., and so on. Some abbreviations are ambiguous, however, and are pronounced depending on the context in which they appear.

For example, the abbreviation *dr.* is pronounced doctor when it begins with a capital letter, but is pronounced drive when it is lowercased. Similarly, *st.* is pronounced Saint when it begins with a capital letter, but is pronounced street when it is lowercased. Examples of this are:

St. John's dr. is pronounced as Saint John's Drive.

Dr. Johnson's st. is pronounced as Doctor Johnson's street.

Acronyms

American English TTS contains a standard dictionary with acronyms such as ASAP, EEG, and NASA.

ASAP and EEG are spelled out, while NASA is pronounced as a single word.

Remote access to Nortel IVR

ASCII-based access to IVR is the recommended method of interfacing with the system remotely. By logging in as `nortel`, the cursor-based menu provides the following functionality:

- System Configuration Utility
- Application Management Utility
- Start/Stop Utilities
- Database Editor
- Systems Reports Interface
- Voice Prompts Editor
- Backup Utility

To view system and channel activity, the SAM trace tool can be used from the command line.

Exiting the System Monitor

The proper way to exit the System Monitor process (locally or remotely) is by clicking on the File option and choosing Exit.

US Robotics 28.8 and 33.6 Data/Fax Modem — settings

The US Robotics 28.8 and 33.6 Data/Fax Modems are UL-recognized and fully FCC-DOC- and CSA-certified modems with the following characteristics:

- high speed, full duplex external data modem with V.34 transmission
- error control (V.42 and MNP 2-4)
- data compression (V.42 bis and MNP 5)

On the external dip switches, set switches 4 and 7 down (ON).

Switch	Factory Setting	Function
1	OFF	Data Terminal Ready (DTR) Override OFF - Normal DTR operations: computer must provide DTR signal for modem to accept commands; dropping DTR terminates a call ON - Modem ignores DTR (Override)
2	OFF	Verbal/Numeric Result Codes OFF - Verbal (word) results ON - Numeric results
3	ON	Result Code Display OFF - Results suppressed ON - Results enabled
4	OFF	Command Mode Local Echo OFF - Keyboard commands displayed ON - Echo suppressed
5	ON	Auto Answer Suppression OFF - Modem answers on first ring, or higher if specified in NVRAM ON - Auto answer disabled
6	OFF	Carrier Detect (CD) Override OFF - Modem sends CD signal when it connects with another modem, drops CD on disconnect ON - CD always ON (Override)

Switch	Factory Setting	Function
7	OFF	Power-on and ATZ Reset Software Defaults OFF - Load Y or Y1 configuration from user-defined nonvolatile memory (NVRAM) ON - Load &F0 - Generic template from read only memory (ROM)
8	ON	Command Set Recognition OFF - Command recognition disabled (Dumb mode) ON - Recognition enabled (Smart mode)

Using a modem to access the SCI

In North America, a modem that supports a 9600 kbps baud rate is shipped with every MRS system. Outside North America, a Nortel-recommended modem is provided by the distributor or customer. This modem must be connected to the MRS system when the system is installed.

ATTENTION

No modem should be connected to the MRS other than the one shipped with the system from the factory or provided by the distributor or customer at installation. Unless a local terminal is connected for a short period of time to perform local diagnostics or maintenance, the modem should not be disconnected from the MRS.

To use a modem to access the SCI, follow these steps.

Procedure 4-5: Using a modem to access the SCI

- 1 Set the switches on the modem as described in “US Robotics 28.8 and 33.6 Data/Fax Modem — settings” on page 4-18.
- 2 Connect the modem to the MRS port B using a standard MRS-to-modem cable.
- 3 Set the terminal parameters as follows:

baud rate	9600
duplex	Full
data bits	7
stop bits	1
parity	even
add LF	off

- 4 From the remote location, dial in to the modem and wait for an answer. Once the modem is connected, press **<Enter>**.

The following message should display:

<system name>

MRS Service Access Port Revision 3.02
Copyright 1991-1996, Nortel. All Rights Reserved
login:

- 5 At the login: prompt, enter the appropriate account name. The default passwords for these accounts are as follows:

Account	Password	Used by
root	profile	Trained Service Personnel
service	access	Trained Service Personnel
admin	supervise	Site Administrators
user	nortel	Routine Maintenance

- 6 After you log in, the system prompts you for your terminal type. If the default terminal type displayed is correct, press **<Enter>**; otherwise, type in the correct terminal type.

Once this is completed, the SCI menu is displayed, followed by the /sci> prompt.

Note: On an MRS/AP, if you log in as root, a # prompt is displayed. At the # prompt, type **/usr/vrs/tools/sci -b /usr/vrs** and press **<Enter>** to access the SCI menu.

Using ZMODEM Communication Protocol for Transferring Files

The file transfer between the MRS and the remote dial-up computer through ZMODEM protocol is implemented through `sz` and `rz` commands which reside at the MRS's `/usr/bin` directory.

The remote computer, which you use to dial in through a modem to the MRS, has to support ZMODEM protocol as well. When transferring files between the MRS and the remote computer, one side must run `rz` (Receive file through ZMODEM) first, then the other side must run `sz` (send file through ZMODEM) to provide the file.

Most of today's Windows-based PC's communication applications support ZMODEM. They can automatically respond to the remote machine and put themselves in the right send/receive mode. To transfer files between the remote computer and the MRS, use the following procedure.

Procedure 4-6: Using ZMODEM Communication Protocol for Transferring Files

- 1 Follow the procedure in "Using a modem to access the SCI" on page 4-20 to dial in to the MRS.
- 2 At the `/sci` prompt, enter the `maint shell` command to get a root shell of the MRS system.
- 3 Use the `cd` command to get to the directory where you want to send or receive files.
- 4 To send files to the MRS, issue the `rz` command and then start to transfer the file using ZMODEM from remote computer.
- 5 For receiving files from MRS, issue the `sz filename` command to receive the `filename` file from the MRS. (**Note:** The wild character `"**"` is accepted by the `sz` command.)
- 6 In order to transfer files between AP and the remote computer, use the `ftp` command to set up a connection between the AP and MRS.

(To use the `ftp` command, type `ftp ipaddress` [you need to know the IP address of the remote computer] at the prompt and press **<Enter>**. At the `ftp >` prompt, type `bin` and press **<Enter>** to set the mode to binary. At the `ftp >` prompt, type `get filename` to get a file from the remote computer, or type `put filename` to put a file on the remote computer.)

To learn more about how to use the `sz` and `rz` commands, issue the command `sz` without the `filename` at the MRS's UNIX shell prompt. A list of options is displayed on the shell screen.

Application development recommendation

Nortel recommends that application developers minimize the occurrence of IVR channel log in to the switch or IVR channel busy out by using appropriately designed IVR applications.

Serial port configuration procedure for the AP

Use the following procedure to program the COM1 on the AP.

Procedure 4-7: Programming the COM1 on the AP

- 1 Log in as `root`.
- 2 At the command prompt, type `sysadmsh` and press **<Enter>**.
- 3 Select **Hardware** and press **<Enter>**.
- 4 Select **Card Serial** and press **<Enter>**.
- 5 To install a new serial board, type `i` at the prompt and press **<Enter>**.
- 6 To select a 1-port card, type `1` at the prompt and press **<Enter>**.
- 7 To select COM 1, type `1` at the prompt and press **<Enter>**.
- 8 At the prompt, type `1` to choose Quadram and press **<Enter>**.
- 9 To set the modem baud rate, type `9600` at the prompt and press **<Enter>**.
- 10 At the prompt, type `1` and press **<Enter>** to select a baud rate of 9600.
The system prompts you to modify the kernel.
- 11 Type `y` and press **<Enter>**.
- 12 To have the kernel boot by default, type `y` at the prompt and press **<Enter>**.
You are prompted to have the kernel environment rebuilt.
- 13 Type `y` at the prompt and press **<Enter>**.
- 14 When prompted to Press any key to continue, press **<Enter>**.
- 15 Press **<ESC>** twice.
- 16 At the prompt, type `quit` and press **<Enter>**.
- 17 Type `yes` to confirm the exit and press **<Enter>**.
- 18 Reboot the machine so that the changes take effect.

Chapter 5: Digital Prompt Tool

Introduction

Purpose of this chapter

This chapter is designed to provide procedures for loading digitized voice prompts and fax files from DOS and Unix-Tar formatted diskettes on to the system. This chapter also discusses adding VSN headers to these files and trimming the silence at the beginning and end of the recorded prompts to a uniform length.

The Digital Prompt Tool enables the user to add VSN headers to the following file formats:

- Adaptive Differential Pulse Code Modification (ADPCM) voice files
- Audio (*.au) voice files
- Tagged Image File Format (TIFF) fax files

Audience and prerequisites

The individual responsible for prompt administrative functions should have some formal computer training with an understanding of basic UNIX commands. This person should also be familiar with the functions required for preparing digitized voice prompts.

Related publications

See also *IVR Generator 2.0/S System Administration Guide*.

In this chapter

- **“Overview,” on page 5-3**

Provides system information including functionality, requirements, and installation procedures. This section also details the system configuration file.

- **“Quick Prompts,” on page 5-7**

Explains the procedures required to perform the “Quick Prompts” option. This option is designed to load prompts, add headers, and trim silence on the prompts.

- **“Load Prompts on the AP or MRS/AP,” on page 5-13**

Explains the procedures required to load voice and fax files from Unix-Tar and DOS formatted diskettes.

- **“Add header to voice prompts,” on page 5-17**

Explains the procedures required to add VSN headers to voice prompts that are stored on the system in either ADPCM or Audio (*.au) format.

- **“Add header to fax prompts,” on page 5-23**

Explains the procedures required to add VSN headers to fax files that are stored on the system in TIFF format.

- **“Trim silence,” on page 5-26**

Explains the procedures required to trim the silence at the beginning and end of voice prompts.

- **“Exit,” on page 5-32**

Explains the procedures required to exit the Digital Prompt Tool functions and return to system command level.

- **“Load prompts on the MRS,” on page 5-32**

Explains how to load the finished prompts on the MRS.

Overview

This document is provided to assist the user in performing the functions of the Digital Prompt Tool. The system enables the user to load recorded prompts from a diskette on to the system. The user can then add VSN headers to voice and fax files as well as trim the silence surrounding the voice prompts.

Features

The Digital Prompt Tool contains the following features:

- loads prompt data from Unix-Tar and DOS formatted diskettes
- adds VSN headers to voice prompt files that are stored on the system in either ADPCM or Audio (*.au) format
- adds VSN headers to fax files stored on the system in TIFF format
- programmed trimming of the silence at the beginning and end of the voice prompt

System requirements

The Digital Prompt Tool resides on the application processor. The Unix operating system must contain the subset of DOS commands that allow the system to read a DOS disk and copy DOS files.

Installing the Digital Prompt Tool

The Digital Prompt Tool is installed on the application processor. To install this application on the system, use the following procedure.

Procedure 5-1: Installing the Digital Prompt Tool

- 1 Insert the Digital Prompt Tool application disk in the floppy disk drive on the application processor.
- 2 Type **cd Nortel** at the system command level to move to the Nortel directory.
- 3 Type **mkdir vfiles.tmp** to create the vfiles.tmp sub-directory to the Nortel directory.
- 4 Type **tar xvf /dev/fd0** to load the application software off the Nortel sub-directory.
- 5 The Digital Prompt Tool is installed in the Nortel/tools directory.

System configuration

The Digital Prompt Tool contains a configuration file that can be modified by the user based on the individual requirements of his or her system. The following information pertains to the system configuration file:

- File Name - `pht.conf`
- Directory Location - `Nortel/sys_files`

The following table illustrates the default values assigned to the system configuration file with some possible alternatives.

Default and alternative values for the system configuration file

Line Number	Default	Alternatives
1. Floppy Drive	<code>/dev/fd0</code>	<code>(/vol/dev/diskette0, and so on)</code>
2. Conversion type	<code>ADPCM</code>	<code>(FAX, MU-LAW, A-LAW, and so on)</code>
3. Voice Header	<code>vsu</code>	<code>(VSN, and so on)</code>
4. Voice Extension	<code>.</code>	<code>(.au, and so on)</code>
5. Fax File Extension	<code>.tif</code>	<code>(Fax file should be in TIF-F format)</code>
6. Trim Duration	<code>120</code>	<code>(user defined, default 120 msec)</code>

Accessing the Digital Prompt Tool

To access the Digital Prompt Tool functions, use the following procedure.

Procedure 5-2: Accessing the Digital Prompt Tool

- 1 Move to the `tools` directory on the system.
- 2 Type `pht` and press **<Enter>** at the system prompt.

- 3** The system displays the following Main Menu window with the cursor in the *Enter your selection* field:

```
DIGITAL PROMPT TOOL, version : 1.00 February 1997
```

```
Main Menu  
=====
```

1. Quick Prompts
2. Load Prompts from floppy
3. Add header to voice prompts
4. Add header to fax prompts
5. Trim silence (voice prompts only)
6. Exit

```
Enter your selection : __
```

Enter selection field

The menu windows throughout the application contain the following field:

- *Enter your selection* — Input field where the user enters the number corresponding to the required function. Valid values are 1 through 6 with a maximum of one digit allowed. No default values are assigned to this field.

Selecting system functions

Use the following procedure to select the desired system function.

Procedure 5-3: Selecting system function

- 1 On the Main Menu window, type the menu option number corresponding to the system function you want to access and press **<Enter>**.

Valid selections are

- Press 1 - Quick Prompts
- Press 2 - Load Prompts from floppy
- Press 3 - Add Header to Voice Prompts
- Press 4 - Add Header to Fax Prompts
- Press 5 - Trim Prompt Silence
- Press 6 - Exit the Digital Prompt Tool

Note: If you enter an invalid digit, the system displays the following Status Message window.

```
STATUS MESSAGE
=====
```

```
INVALID SELECTION
```

```
Press ANY KEY to go back : __
```

- 2 When the Status Message window displays, do the following:
 - a Press any key to return to the Main Menu.
 - b Check your entry and try again.

Quick Prompts

The Quick Prompts option performs all the functions of the Digital Prompt Tool without requiring the user to access each of these functions through the Main Menu.

The Quick Prompts option enables the user to perform the following functions from this one menu option:

- Load recorded prompts from a floppy.
- Add a header to voice prompts.
- Add a header to fax prompts.
- Trim unwanted silence off the beginning and the end of voice prompts.
- Return to the Main Menu.

The user may prefer using the other Main Menu options for more complex situations involving various formats and prompt types.

Accessing Quick Prompts

Use the following procedure to access the Quick Prompts function.

Procedure 5-4: Accessing the Quick Prompts function

- 1 Log in as **nortel** on the AP.
- 2 To access the Quick Prompts function, type **1** in the *Enter your selection* field on the Main Menu window and press **<Enter>**.

The system displays the following Quick Prompts window with the cursor in the Enter the prompt number for file field:

```
LOAD FILES
```

```
Load Files Menu  
=====
```

```
Enter the prompt number for file : VSN00314 : ____
```

The system prompts the user to enter the decimal prompt number of the prompt to be loaded on to the system.

Loading prompts

To load prompts from a floppy diskette using the Quick Prompts option, use this procedure.

Procedure 5-5: Loading prompts

- 1 At the Load File window, enter the decimal number of the prompt in the *Enter prompt number* field.

The system searches the floppy diskette for the prompt number.

- 2 If the prompt number is *not* found, the system displays the Status Message window with the following error message:

```
STATUS MESSAGE
=====
```

```
VSN 'vsn 00100' does NOT exist
in directory /home/Nortel/vfiles.d/
Prompt processing aborted, no changes saved !
```

```
Press ANY KEY to go back : __
```

- 3 If the prompt number *is* found, the system loads the file and proceeds to add the header to the prompt.

Adding a prompt header

To add a header to a voice prompt using the Quick Prompts option, use this procedure.

Procedure 5-6: Adding a prompt header

- 1 The prompt is loaded and the system displays the following prompt:

Enter the type of encoding (ADPCM, MU-LAW, FAX) : _____

- 2 Enter the type of file in uppercase letters that you want to add the header to as one of the following:

- “ADPCM” - voice file
- “MU-LAW” - audio file
- “FAX” - fax file

The system displays the following Status Message window to confirm that the header was added.

```
STATUS MESSAGE
=====
```

```
Command Successful
```

```
Press ANY KEY to go back : __
```

- 3 Press any key to activate the Trim silence function.

Executing the Trim silence function

To execute the Trim silence function, use the following procedure.

Procedure 5-7: Executing the Trim silence procedure

- 1 The prompt is loaded and the header has been added to the prompt.
- 2 The Quick Prompts function begins to trim the silence at the beginning and end of the prompt to a length of 120 milliseconds.

Note 1: When trimming silence using the Quick Prompts option, the system always uses the default value of 120 milliseconds.

Note 2: To define the amount of silence, the user must perform these functions from the Trim Prompt Silence option off the Main Menu (see “Accessing the Trim silence function,” on page 5-27).

- 3 After the system has completed the trimming process, the following Status Message window is displayed:

```
STATUS MESSAGE
=====
```

```
Decompressing Data
```

```
Trimming down to 120 msecs at the beginning and end of
prompts
```

```
Compressing linear data
```

```
Waveform Saved
```

```
Press ANY KEY to go back : __
```

- 4 To return to the Main Menu, press any key.

Download prompts to the MRS

Once the user has performed the Quick Prompts functions, the prompts are ready to be distributed to the MRS. To load the finished prompts onto the MRS, the user must use the Prompt Loading Facility.

The Prompt Loading Facility is a tool on the IVR Generator application that is used for playing, recording, deleting, backing up or restoring, and managing prompts.

For detailed instructions on operating the Prompt Loading Facility, refer to the *IVR Generator 2.0/S System Administrator Guide*.

Load Prompts on the AP or MRS/AP

The “Load Prompts” function enables the user to load voice and fax prompts from a diskette located in the floppy drive of the AP or the MRS/AP. This function stores prompts loaded from diskettes in one of the following formats:

- Unix-Tar format
- DOS format

The system copies the prompts from the diskette and stores them in the directory:

`"vfiles.tmp"`

Note 1: If the user forgets to create the directory, this tool creates the directory `vfiles.tmp`.

Note 2: This directory is required by the system for the Adding Headers and Trimming Silence functions of the Digital Prompt Tool.

Accessing the Load Prompts function

To access the Load Prompts function, use the following procedure.

Procedure 5-8: Accessing the Load Prompts function

- 1 Type **2** in the *Enter your selection* field on the Main Menu window and press **<Enter>**.

The system displays the following Load Prompt Menu window with the cursor in the Enter your selection field:

LOAD PROMPT MENU

Load Prompt Menu
=====

1. Load tar files from floppy
2. Load DOS files from floppy
3. Return to Main Menu

- 2 Enter your selection : ____
To load tar formatted files, follow the steps in Procedure 5-9.
To load DOS files, follow the steps in Procedure 5-10.

Loading tar files

To load tar formatted voice and fax files from the AP or MRS/AP floppy drive, use the following procedure.

Procedure 5-9: Loading tar files

- 1 To load tar files, type **1** in the *Enter your selection* field on the Load Prompt Menu window and press **<Enter>**.

If the file contains a name, the system prompts the user to enter a VSN number in decimal format.

- 2 Enter the decimal prompt number and press **<Enter>**.

The system displays a Status Message window similar to the following example:

```
STATUS MESSAGE
=====
```

```
x MBA.txt, 3531 bytes, 7 tape blocks
x XYZ.txt 15537 bytes, 31 tape blocks
```

```
Press ANY KEY to go back : __
```

The Status Message window displays the following information:

- The name of the file being loaded from the floppy disk to the current system directory.
 - The number of bytes in the file.
 - The number of tape blocks loaded for the file.
- 3 Once the files have been loaded, press any key to return to the Load Prompt Menu window where you can continue loading prompts.

Load DOS file

To load DOS formatted voice and fax files from the AP or MRS/AP floppy drive, follow the steps in this procedure.

Procedure 5-10: Loading DOS files

- 1 To load DOS files, type **2** at the Enter your selection prompt in the Load Prompt Menu window and press **<Enter>**.

If the file contains a name, the system prompts the user to enter a VSN number in decimal format.

- 2 Enter the decimal prompt number and press **<Enter>**.

The system displays a Status Message window similar to the following example:

```
STATUS MESSAGE
=====
```

```
Copying files from DOS floppy in /dev/fdo into the current
directory
```

```
Copying file VSN00314
```

```
Done copying files from floppy
```

```
Press ANY KEY to go back : __
```

The Status Message window displays the following information:

- The system is copying the files from the floppy disk to the current system directory.
 - The name of the file being loaded.
 - Confirmation that the file was successfully loaded from the floppy.
- 3 Once the files have been loaded, press any key to return to the Load Prompt Menu window where you can continue loading prompts.

Return to Main Menu

To exit the Load Prompts function and return to the Main Menu, follow the steps in this procedure.

Procedure 5-11: Return to the Main Menu

- 1 To exit the Load Prompts Menu window and return to the Main Menu, type **3** and press **<Enter>**.

The system displays the Main Menu window with the cursor in the Enter your selection field.

Add header to voice prompts

The “Add header to voice prompts” option enables the user to add VSN headers to voice prompts that were loaded on the system from the floppy diskette.

The “Add header to voice prompts” function provides the user with the following options:

- Add headers to a range of ADPCM voice prompts.
- Add a header to a single ADPCM voice prompt.
- Add a header to a single Audio (*.au) voice file.

Note: To perform this function, every prompt name must conform to the naming format that is specified in the configuration file.

The format might be lowercase VSN followed by the decimal prompt number.

For example: vsn01000

Accessing the Add Header to Voice Prompts menu

Use the following procedure to access the Add Header to Voice Prompts menu.

Procedure 5-12: Accessing the Add Header to Voice Prompts menu

- 1 To access the Add Header to Voice Prompts function menu, type 3 in the Enter your selection field on the Main Menu window and press <Enter>.

The system displays the following Voice Prompt Header window with the cursor in the Enter your selection field:

VOICE PROMPT HEADER

Add Header to Voice Prompts Menu
=====

1. Add header to range of voice prompts
2. Add header to single voice prompt
3. Add header to voice file (*.au files only)
4. Return to Main Menu

Enter your selection : __

Adding a VSN header to a selected range of voice prompts

To add a VSN header to a selected range of voice prompts, use the following procedure.

Procedure 5-13: Adding a VSN header to a selected range of voice prompts

- 1 At the Voice Prompt Header window, type 1 and press **<Enter>**.

The system displays the following Process Range of Prompts window with the cursor in the Enter the starting prompt number field:

PROCESS RANGE OF PROMPTS

Add header to a range of prompts

=====

Enter the starting prompt number : ____

NOTE:

Ending Prompt number should be greater than the Starting Prompt number.

- 2 Enter the decimal prompt number to begin the range and press **<Enter>**.

The system displays the following prompt:

Enter the ending prompt number : ____

- 3 Enter the decimal prompt number to end the range and press **<Enter>**.

The header is added and the voice prompt is converted to the standard Nortel format.

The system displays the Status Message window:

```
STATUS MESSAGE
=====
```

```
Command Successful
```

```
Press ANY KEY to go back : __
```

- 4 Press any key to return to the Main Menu window.

Adding a VSN header to a single prompt

Use the following procedure to add a VSN header to a single prompt.

Procedure 5-14: Adding a VSN header to a single prompt

- 1 At the prompt on the Voice Prompt Header window, type **2** and press **<Enter>**.

The system displays the following Process a Single Prompt window with the cursor in the Enter the prompt number field:

```
PROCESS A SINGLE PROMPT
```

```
Add header to a single prompt
=====
```

```
Enter the prompt number (e.g., 1000) : __
```

- 2 Enter the decimal prompt number of the prompt to add a header and press **<Enter>**.

The header is added and the voice prompt is converted to the standard Nortel format.

The system displays the Status Message window:

```
STATUS MESSAGE
=====
```

```
Command Successful
```

```
Press ANY KEY to go back : __
```

- 3 Press any key to return to the Main Menu window.

Adding a VSN header to a voice file

To add a VSN header to a voice file, use the following procedure.

Procedure 5-15: Adding a VSN header to a voice file

- 1 At the Voice Prompt Header window, type 3 and press **<Enter>**.

The system displays the following Process Audio Files window with the cursor in the Enter the audio file name field:

```
PROCESS AUDIO (*.AU) FILES
```

```
Convert *.au file to valid prompt
=====
```

```
Enter the audio (*.au) file name : __
```

- 2 Type the exact audio file name (the system is case sensitive) with extension and press **<Enter>**.
The system displays the following prompt:

```
Enter the prompt number (e.g., 1000) : __
```
- 3 Type the decimal prompt number for the audio file and press **<Enter>**.
The header is added and the file is converted to the standard Nortel format.
The system displays the Status Message window:

```
STATUS MESSAGE  
=====
```



```
Command Successful
```



```
Press ANY KEY to go back : __
```
- 4 Press any key to return to the Main Menu window.

Return to Main Menu

Use the following procedure to return to the Main Menu.

Procedure 5-16: Returning to the Main Menu

- 1 To exit the Add Header to Voice Prompts function and return to the Main Menu, type **4** and press **<Enter>** at the Voice Prompt Header window.
The system displays the Main Menu window with the cursor in the Enter your selection field.

Add header to fax prompts

The “Add header to fax prompts” function enables the user to add a VSN header to selected fax files loaded on to the system from the floppy drive.

This function adds the headers to the designated fax file for the specified number of pages in the fax. The system default for number of pages is one (1), but the user can override the default and indicate the number of pages that they require headers be added to.

Note 1: To perform this function, the system requires the user to enter the prompt number and the file name.

Note 2: The file format must be TIFF (*.tif suffix). If desired, the user can change the suffix to *.tiff in the configuration file pht.conf.

Note 3: The naming format is the decimal prompt number.

Accessing the Add Header to Fax Prompts menu

To access the Add Header to Fax Prompts menu, use the following procedure.

Procedure 5-17: Accessing the Add Header to Fax Prompts menu

- 1 To access the Add Header to Fax Prompts menu, type **4** in the *Enter your selection* field on the Main Menu window and press **<Enter>**.

The system displays the following Fax Prompt Header window with the cursor in the Enter your selection field:

FAX PROMPT HEADER

Add Header to Fax Prompts Menu

=====

1. Add header to single fax prompt
2. Return to Main Menu

Enter your selection : __

Adding a VSN header to a single fax file

To add a VSN header to a single fax file, use the following procedure.

Procedure 5-18: Adding a VSN header to a single fax file

- 1 At the Fax Prompt Header window, type **1** and press **<Enter>**.

The system displays the following Process a Single Prompt window with the cursor in the Enter the prompt number field:

```
PROCESS A SINGLE PROMPT
```

```
Add header to a single prompt
=====
```

```
Enter the prompt number (e.g., 1000) : __
```

- 2 Enter the decimal prompt number for the fax file and press **<Enter>**.

The system displays the following prompt:

```
Enter the TIFF file name : __
```

- 3 Type the exact file name (the system is case sensitive) with extension and press **<Enter>**.

The system displays the following prompt:

```
Enter the Number of Pages (default 1) : __
```

- 4 Type the number of the page to assign the header to and press <Enter>.

Note: To accept the system default of one page, press <Enter>.

The header is added and system displays the Status Message window:

```
STATUS MESSAGE
=====
```

```
Command Successful
```

```
Press ANY KEY to go back : __
```

- 5 Press any key to return to the Main Menu window.

Return to Main Menu

To exit the Add Header to Fax Prompts menu, use the following procedure.

Procedure 5-19: Returning to the Main Menu

- 1 To exit the Add Header to Fax Prompts menu and return to the Main Menu, type **2** at the Fax Prompt Header window and press <Enter>.
- The system displays the Main Menu window with the cursor in the Enter your selection field.*

Trim silence

The “Trim silence” function enables the user to trim the amount of silence at the beginning and end of voice prompts after they have been converted to the standard Nortel format. This function pertains *only* to voice prompts that have been converted to the standard Nortel format using the “Load Prompts” option of this application.

The “Trim silence” function provides the following options to the user:

- Trim the silence from a range of voice prompts.
- Trim the silence from a single voice prompt.

Note: To perform this function, every prompt name must conform to a naming format that is specified in the configuration file.

The format might be lowercase VSN followed by the decimal prompt number.

For example: vsn01000

Accessing the Trim silence function

To access the Trim silence function, use the following procedure.

Procedure 5-20: Accessing the Trim silence function

- 1 To access the "Trim silence" function, type **5** in the Enter your selection field on the Main Menu window and press **<Enter>**.

The system displays the following Trim silence window with the cursor in the Enter your selection field:

TRIM SILENCE

Trim Silence of Voice Prompts Menu
=====

1. Trim silence for a range of voice prompts
2. Trim silence for a single voice prompt
3. Return to Main Menu

Enter your selection : __

Trim a range of prompts

To trim silence from a selected range of voice prompts, use the following procedure.

Procedure 5-21: Trimming a range of prompts

- 1 At the Trim Silence window, type **1** and press **<Enter>**.

The system displays the following Trim Range of Prompts window with the cursor in the Enter the starting prompt number field:

TRIM RANGE OF PROMPTS

Trim a range of prompts
=====

Enter the starting prompt number : ____

NOTE:

Ending Prompt number should be greater than the Starting Prompt number.

- 2 At the prompt, type the decimal prompt number to begin the range and press **<Enter>**.

The system displays the following prompt:

Enter the ending prompt number : ____

- 3 At the prompt, type the decimal prompt number to end the range and press **<Enter>**.

The system displays the following prompt:

Enter the desired duration of trim (default 120 msec):__

- 4 At the prompt, type the duration of silence trim and press **<Enter>**. It is recommended that the period of silence should not exceed 120 milliseconds.

Note: To accept the system default value of 120 milliseconds, press **<Enter>**.

The silence surrounding the prompts is trimmed to the designated duration of time.

The system displays the Status Message window:

```
STATUS MESSAGE
=====
```

```
Decompressing Data
```

```
Trimming down to 120 msecs at the beginning and end of
prompts
```

```
Compressing linear data
```

```
Waveform Saved
```

```
Press ANY KEY to go back : __
```

- 5 Press any key to return to the Main Menu window.

Trim a single prompt

To trim silence from a selected single voice prompt, use the following procedure.

Procedure 5-22: Trimming a single prompt

- 1 At the Trim Silence window, type 2 and press **<Enter>**.

The system displays the following Trim a Single Prompt window with the cursor in the Enter the prompt number field:

```
TRIM A SINGLE PROMPT
```

```
Trim a single prompt
=====
```

```
Enter the prompt number (e.g., 1000) : __
```

- 2 Type the decimal prompt number to designate the prompt to trim and press **<Enter>**.

The system displays the following prompt:

```
Enter the desired duration of trim (default 120 msec):__
```

- 3 Type the duration of silence trim and press **<Enter>**. It is recommended that the period of silence should not exceed 120 milliseconds.

Note: To accept the system default value of 120 milliseconds, press Enter.

The silence surrounding the prompts is trimmed to the designated duration of time.

The system displays the Status Message window:

```
STATUS MESSAGE
=====
```

```
Decompressing Data
```

```
Trimming down to 120 msecs at the beginning and end of
```

prompts

Compressing linear data

Waveform Saved

Press ANY KEY to go back : ____

- 4 Press any key to return to the Trim Silence window.

Return to Main Menu

To exit the “Trim silence” function and return to the Main Menu, use the following procedure.

Procedure 5-23: Returning to the Main Menu

- 1 At the Trim Silence window, type 3 and press <Enter>.
The system displays the Main Menu window with the cursor in the Enter your selection field.

Exit

The “Exit” option enables the user to exit from the Digital Prompt Tool application and return to the system command level.

Exiting from the Digital Prompt Tool application

To exit the Digital Prompt Tool application and return to the system command level, use the following procedure.

- 1 At the Main Menu window, type **6** and press **<Enter>**.

The system exits the application and displays the system command prompt.

Load prompts on the MRS

Once the user has performed the “Digital Prompt Tool” functions, the prompts are ready to be distributed on to the MRS. To load the finished prompts on the MRS, the user must use the Prompt Loading Facility.

The Prompt Loading Facility is a tool that is used for playing, recording, deleting, backing up or restoring, and managing prompts.

For detailed instructions on operating the Prompt Loading Facility, refer to the *IVR Generator 2.0/S System Administration Guide*.

Chapter 6: Upgrading to Nortel IVR 2.5/S

Overview

This information is intended for use by VADs, distributors, and/or administrators responsible for the installation of the IVR 2.5/S product.

This chapter provides information required for upgrading your system from Nortel IVR Release 2.01/S to Nortel IVR Release 2.5. This information is designed to aid the person responsible for installing and maintaining the Nortel IVR Release 2.5 upgrade software; its purpose is to provide step-by-step procedures for

- preparing for the installation
- installing the upgrade software
- completing the installation

Note: This upgrade does not contain information on adding features or increasing the capacity of your system. If you require additional features or capacity for your system, contact your distributor.

In this chapter

Section A, “Before you begin,” on page 6-2, outlines the steps you must take before beginning the installation of the upgrade software.

Section B, “Upgrade procedures,” on page 6-16, provides the procedures necessary for upgrading your system, including upgrades for the options you already have on your OIVR 2.01 system.

Section A: Before you begin

Overview

This section provides information outlining the things you should do to prepare for the upgrade of your system's software. An upgrade check list is provided to aid in planning the work items required before, during, and after the upgrade process.

The actual upgrade should take approximately half of a day and should be done during off-peak hours.

Nortel Support

Following the upgrade, the system will not function properly unless Nortel Customization is run through the root account on MRS and MRS/AP.

In addition, backup of the AP and MRS or MRS/AP should be completed as a precaution prior to beginning an upgrade. Table 6-1 shows which accounts are required for each high-level task of the installation.

Table 6-1: Account requirements for installation tasks

Installation component	Machine type	Account	Nortel assistance required
MRS Base Packages	MRS	root	No
	MRS/AP	root	No
MRS Options	MRS	root	No
	MRS/AP	root	No
Nortel Customization	MRS	root	No
	MRS/AP	root	No

Table 6-1: Account requirements for installation tasks

Installation component	Machine type	Account	Nortel assistance required
System Backup	MRS	root	No
	AP	root	No
	MRS/AP	root	No
IVR Generator*	AP	root	No
	MRS/AP	root	No

* Including Report Writer

IVR 2.5/S upgrade checklist

The IVR 2.5/S upgrade checklist is provided to help you plan, install and complete the IVR 2.5/S software upgrade successfully.

The checklist contains

- work items to be completed before starting the upgrade
- the procedures required to install the upgrade software
- the final steps required to complete the upgrade process

Table 6-2: IVR 2.5/S upgrade checklist

IVR 2.5/S Upgrade Checklist				✓
What to do		How to do it		
1	Check your system's configuration (including number of channels, applications running, BIOS version level (BIOS level is detected and displayed at bootup time), and so on).	Use the <code>/sci/config/list</code> option on the <code>sci</code> menu. For information on the <code>sci</code> , refer to the <i>IVR Generator 2.0/S Service Console Interface Reference Manual</i> .		

6-4 Upgrading to Nortel IVR 2.5/S

Table 6-2: IVR 2.5/S upgrade checklist

IVR 2.5/S Upgrade Checklist				✓
2	Check the system and options software release levels to make sure that your system is running the current versions before proceeding with the upgrade.	See “Verifying software levels” on page 6-10.		
3	Check to see if your system is configured with disk mirroring. <i>Note:</i> The upgrade installation procedure is slightly different for systems with disk mirroring. (Disk mirroring is available on an MRS only.)	See “Determining if the MRS is configured with disk mirroring,” on page 6-12.		
4	Verify that you have the required upgrade diskettes on hand.	See “Software upgrade package,” on page 6-12.		

Table 6-2: IVR 2.5/S upgrade checklist

IVR 2.5/S Upgrade Checklist			✓
5	Create backups of your system(s).	— To back up the AP, follow Procedure 8-7, “Running the AP & MRS/AP HD Backup script,” on page 8-7. — To back up the MRS/AP, follow Procedure 8-7, “Running the AP & MRS/AP HD Backup script,” on page 8-7. — To back up VSN files on the MRS/AP follow Procedure 8-8, “Backup of VSN files,” on page 8-8. — To back up the MRS, follow Procedure 8-10, “Backing up the MRS,” on page 8-10. — To back up VSN files on the MRS follow Procedure 8-11, “Backup of VSN files,” on page 8-11. For complete information on backups, see Chapter 8, “Backup procedures.”	

Table 6-2: IVR 2.5/S upgrade checklist

IVR 2.5/S Upgrade Checklist				✓
MRS and MRS/AP upgrades				
6	Prepare the MRS or MRS/AP for upgrade.	Follow Procedure 6-3, "Preparing an MRS with disk mirroring for upgrade," on page 6-16, or Procedure 6-4, "Preparing an MRS without disk mirroring or MRS/AP for upgrade," on page 6-21.		
7	Upgrade the MRS base (use diskette labeled "MRS Version 3.02.02 Base Package Update")	Follow Procedure 6-5, "MRS Base Package upgrade," on page 6-22.		
8	Add MRS 3.02.02 Dialogic PTR 3427 (use diskette labeled "MRS Version 3.02.02 Dialogic PTR 3427").	Follow Procedure 6-6, "Adding the MRS 3.02.02 Dialogic PTR 3427," on page 6-23.		
9	Install the MRS Span Driver (MRS only) (use diskette labeled "MRS Version 3.02.00 Span Driver").	Follow Procedure 6-7, "Installing the MRS Span Driver," on page 6-25.		
10	Install International Country Parameters (use diskette labeled "MRS Version 3.02.01 International Country Parameters").	Follow Procedure 6-8, "Installing International Country Parameters," on page 6-26.		
11	Upgrade the MRS system configuration (use diskette labeled "MRS Version 3.02.02 Distributed System Configuration" for a distributed system, or "MRS Version 3.02.02 Folded System Configuration" for a folded system).	Follow Procedure 6-9, "Upgrading the MRS system configuration," on page 6-28.		
12	Install the D/41ESC firmware patch for the MRS or MRS/AP (use diskette labeled "MRS Version 3.02.00 D/41ESC Firmware Patch").	Follow Procedure 6-10, "Installing the D/41ESC firmware patch," on page 6-30.		

Table 6-2: IVR 2.5/S upgrade checklist

IVR 2.5/S Upgrade Checklist				✓
13	Install the Disk Mirroring Option on the MRS only if you have purchased disk mirroring (use diskette labeled “MRS Version 3.02 Disk Mirroring Option”).	Follow Procedure 6-11, “Installing the disk mirroring option,” on page 6-30.		
14	Install the D/81A firmware patch for the MRS and MRS/AP (use diskette labeled “MRS Version 3.02.00 D/81A Firmware Patch”).	Follow Procedure 6-12, “Installing the D/81A firmware patch,” on page 6-30.		
15	Install the Line side T1 Trunk file (use diskette labeled “MRS Version 3.02 Line side T1 Trunk File”).	Follow Procedure 6-13, “Installing the Line side T1 Trunk file,” on page 6-31.		
16	Install the Nortel T1 ACD Trunk Type Option File on the MRS/AP only (use diskette labeled “MRS Version 3.02 Nortel T1 ACD Trunk Type Option”).	Follow Procedure 6-14, “Installing the Nortel T1 ACD Trunk Type Option file,” on page 6-31.		
17	Install the Nortel Analog ACD Trunk Type Option File on the MRS/AP only (use diskette labeled “MRS Version 3.02 Nortel ACD Trunk Type Option”).	Follow Procedure 6-15, “Installing the Nortel Analog ACD Trunk Type Option file,” on page 6-32.		
18	Install the MRS and VSN HD backup script (MRS only) (use diskette labeled “MRS Version 3.02 MRS HD & VSN Backup Scripts”)	Follow Procedure 6-16, “Installing MRS and VSN backup scripts,” on page 6-32.		
19	Install the AT&T G3, Rolm, and DMS100 Trunk files (use diskette labeled “MRS Version 3.02 AT&T G3, Rolm, and DMS100 Trunk Files”)	See Procedure 6-17, “Installing AT&T G3, Rolm, and DMS100 Trunk files,” on page 6-33.		
20	Install the OPEN IVR 2.5 MRS/AP TTS/SR option Conversion Utility (use the diskette[s] labeled OPEN IVR 2.5 MRS/AP TTS/SR Conversion Utility	Follow Procedure 6-18, “Installing the MRS/AP TTS/SR Conversion Utility,” on page 6-34.”		

Table 6-2: IVR 2.5/S upgrade checklist

IVR 2.5/S Upgrade Checklist				✓
21	Install the E1 CAS/ISDN PRI protocols in all countries except Canada and the U.S. (use the diskette(s) labeled MRS Version 3.02.01 and one of these option diskettes ♦ CAS Signaling Option ♦ Enhanced DPNSS Signaling Option)	Follow Procedure 6-19, "Installing E1 CAS/ISDN protocols," on page 6-34," and Procedure 6-20, "Activating the protocol," on page 6-35.		
22	Complete the MRS base system upgrades. <i>Note:</i> Do this now only if you have no options to upgrade.	See "Completion of the MRS base system package upgrades" on page 6-35.		
Options upgrades (if applicable to your system)				
23	Install the Text-To-Speech option upgrade (use diskette labeled "MRS Version 3.02.00 L&H TTS Option for Antares").	Follow Procedure 6-22, "Upgrading the TTS option," on page 6-36.		
24	Install the Fax option upgrade (use diskette labeled "MRS Version 3.02.02 BrookTrout Fax Option").	Follow Procedure 6-23, "Upgrading the Fax Option," on page 6-37.		
25	Install the ASR option upgrade (use the diskette labeled "MRS Version 3.02.01 VCS ASR Option").	Follow Procedure 6-24, "Upgrading the ASR option," on page 6-40.		
AP and MRS/AP upgrades				
26	Install the upgrade for IVR Generator 2.5/S. (Use the diskettes (7) labeled "IVR Generator Version 2.00.12 for SCO ODT 3.0.")	Follow Procedure 6-25, "Extracting the installation file from the software diskettes," on page 6-42, and Procedure 6-26, "Installing IVR Generator 2.00.12," on page 6-43.		
27	Install manual pages on the AP (Use the tape labeled "Open IVR 2.5 SCO ODT 3.0 Man Pages.")	Follow Procedure 6-27, "Adding manual pages," on page 6-47.		

Table 6-2: IVR 2.5/S upgrade checklist

IVR 2.5/S Upgrade Checklist			✓
28	Install the AP and MRS/AP HD backup scripts (Use diskette labeled “AP & MRS/AP HD”).	See “Installing the AP HD Backup script” on page 6-48.	
29	Install Report Writer upgrade (Use the diskette labeled “IVR Generator Version 2.00.12 Report Writer.”)	1 Remove old files and Report Writer software (see “Report Writer” on page 6-48). 2 Follow Procedure 6-29, “Upgrading Report Writer software,” on page 6-49, and Procedure 6-30, “Modifying Report Writer,” on page 6-51.	
30	Install the AP File Transfer Utility (on the AP and MRS/AP only). (Use the diskette labeled “IVR Generator 2.0/S SCO AP File Transfer Utility.”)	Follow Procedure 6-32, “Installing the AP File Transfer Utility,” on page 6-52.	
31	Install the SCO Serialization Script (on the AP only). (Use the diskette labeled “IVR Generator 2.0/S SCO Unix Serialization Script.”)	Follow Procedure 6-33, “Installing SCO serialization,” on page 6-52.	
32	Install the SCO Unix patches for Sybase. (Use diskettes labeled “OPEN IVR 2.5 SCO Unix UOD381A Patch” and “OPEN IVR 2.5 SCO Unix NET382E Patch.”)	See “Installing SCO Support Level Supplements required to support Sybase 10.0,” on page 6-54.	
33	Install the SCO Unix patches for Oracle. (Use diskettes labeled “OPEN IVR 2.5 SCO Unix UOD374A Patch” and “OPEN IVR 2.5 SCO Unix EFS139OS Patch.”)	See “Installing SCO Support Level Supplements required to support Oracle,” on page 6-56.	
34	Complete the upgrade process.	See “Final steps in the upgrade process,” on page 6-53.	

Table 6-2: IVR 2.5/S upgrade checklist

IVR 2.5/S Upgrade Checklist			✓
35	Make a backup of the upgraded system(s).	— To back up the AP, follow procedures Procedure 8-7, “Running the AP & MRS/AP HD Backup script,” on page 8-7. — To back up the MRS/AP, follow Procedure 8-7, “Running the AP & MRS/AP HD Backup script,” on page 8-7. — To back up VSN files on the MRS/AP follow Procedure 8-8, “Backup of VSN files,” on page 8-8. — To back up the MRS, follow Procedure 8-10, “Backing up the MRS,” on page 8-10. — To back up VSN files on the MRS follow Procedure 8-11, “Backup of VSN files,” on page 8-11. For complete information on backups, see Chapter 8, “Backup procedures.”	

Verifying software levels

Follow the instructions in this section to verify the software levels on your system.

Verifying the base software level

Prior to attempting the upgrade, verify that the current installed release is Open IVR 2.01. To find the current release number, click on the Question Mark icon (?) on the IVR Generator Control Panel and then click on the About option. It should display Open IVR 2.01.

Also, verify that the version of the base MRS package is MRS 3.00.03. (See Procedure 6-1, “Determining system options and revision levels,” on page 6-11.)

Verifying the BIOS version level

Verify that the BIOS version level is at 1.00.17. (The BIOS version level is displayed during the bootup of the system.)

If your system is at a higher or lower BIOS level, contact Nortel for support.

Determining system options and revision levels

This section is only applicable to MRS and MRS/AP.

To determine which options and their revision levels are selected on your system, use the following procedure.

Procedure 6-1: Determining system options and revision levels

- 1 Log in to the `sci` using the `root` account. For MRS, log in on the VT100 console using the `root` account and password.

On the MRS/AP, press `<ALT><CTRL><F1>`, and log in as `root`. Then type `/usr/vrs/tools/sci -b /usr/vrs` to access the `sci` menu.

Note: For account passwords, refer to the “Product Overview” chapter in the *Nortel IVR 2.0/S Installation and Maintenance Guide*. The root password for the MRS is `profile`.
- 2 From the `sci` menu, type `admin catalog rev` and press `<Enter>`.

A list of packages with revision levels is displayed. The base package level should be MRS 3.00.03.
- 3 Determine the installed options and revision levels from the list that is displayed. (A partial list is shown in Table 6-3.)

Table 6-3: MRS, MRS/AP Option list

Option	Package list entry	Rev
L&H TTS	MRS TTS Option	3.00.01
BrookTrout Fax	MRS BrookTrout Fax Option	3.00.02
VCS Voice Recognition	MRS VCS Voice Recognition Option	3.00.01

Determining if the MRS is configured with disk mirroring

The upgrade installation procedure is slightly different for an MRS with disk mirroring (disk mirroring is not available on an MRS/AP or AP). To determine whether your system is configured for disk mirroring, use Procedure 6-2, "Determining if disk mirroring is installed on the MRS."

Procedure 6-2: Determining if disk mirroring is installed on the MRS

- 1 Log in as `root`.
- 2 At the prompt, type `maint shell` and press **<Enter>**.
- 3 From the shell prompt, run the Veritas utility. At the prompt, type `/usr/lib/vxvm/volprint` and press **<Enter>**.

The system displays a table showing the various partitions being mirrored. All entries with type `plex` and `vol` should have a `KSTATE` entry of `enabled`. For an example of the table, see "Check the disk mirroring volumes," on page 9-18.

- 4 At the root prompt, type `/usr/vrs/tools/sci -b /usr/vrs` and press **<Enter>** to go to the `sci` menu.
- 5 At the `sci` prompt, type `admin catalog display` and press **<Enter>**.

The system displays a list of installed options. Check to see if disk mirroring is displayed.

Software upgrade package

The Nortel IVR Release 2.5 upgrade package contains the software listed in Table 6-4: IVR 2.01 to IVR 2.5 Upgrade diskettes. Before beginning the upgrade, check to ensure that you have received the required software.

Table 6-4: IVR 2.01 to IVR 2.5 Upgrade diskettes

Component	Part number	Media / QTY
IVR Generator 2.0/S AP & MRS/AP HD Backup Script	NT3R9801 A0679403	3.5" diskette / 1
IVR Generator Version 2.00.12 for SCO ODT 3.0	NT3R9802 A0679404	3.5" diskette / 7
MRS Version 3.02.00 D/41ESC Firmware Patch	NT3R9810 A0679412	3.5" diskette / 1

Table 6-4: IVR 2.01 to IVR 2.5 Upgrade diskettes

Component	Part number	Media / QTY
MRS Version 3.02.02 Dialogic PTR 3427	NT3R9804 A0679406	3.5" diskette / 1
MRS Version 3.02.00 Span Driver	NT3R9805 A0679407	3.5" diskette / 1
MRS Version 3.02.01 International Country Parameters	NT3R9806 A0679408	3.5" diskette / 1
MRS Version 3.02.02 Distributed System Configuration	NT3R9807 A0679409	3.5" diskette / 1
MRS Version 3.02.02 Folded System Configuration	NT3R9808 A0679410	3.5" diskette / 1
MRS Version 3.02.02 Base Package Update	NT3R9809 A0679411	3.5" diskette / 2
MRS Version 3.02.02 Nortel Customization Diskette	NT3R9811 A0679413	3.5" diskette / 1
MRS Version 3.02.02 Brooktrout Fax Option	NT3R64AB A0679385	3.5" diskette / 1
MRS Version 3.02.01 VCS ASR Option	NT3R9813 A0679415	3.5" diskette / 1
Report Writer Keycode	P0832911	card / 1
MRS Version 3.02.00 L&H TTS Option for Antares	NT3R6504 A0679386	3.5" diskette / 1
IVR Generator Version 2.00.12 Report Writer	NT3R9803 A0679405	3.5" diskette / 2
SCO Unix Year 2000 Patch	NT3R9814 A0679416	3.5" diskette / 1
IVR Generator 2.0/S AP File Transfer Utility	NT3R9815 A0679417	3.5" diskette / 1
IVR Generator 2.0/S SCO Unix Serialization Script	NT3R9822 A0679424	3.5" diskette / 1
MRS Version 3.02.00 D/81A Firmware Patch	NT3R9823 A0679425	3.5" diskette / 1

Table 6-4: IVR 2.01 to IVR 2.5 Upgrade diskettes

Component	Part number	Media / QTY
MRS Version 3.02.01 CAS Signaling Option	NT3R9816 A0679418	3.5" diskette / 1
MRS Version 3.02.02 Enhanced DPNSS Signaling Option	NT3R9817 A0679419	3.5" diskette / 1
Open IVR 2.5 SCO ODT 3.0 Man Pages	NT3R9824 A0680270	.25" tape / 1
MRS Version 3.02 MRS HD & VSN Backup Scripts	NT3R9825 A0684416	3.5" diskette / 1
MRS Version 3.02 Line side T1 Trunk File	NT3R9826 A0684417	3.5" diskette / 1
MRS Version 3.00.02 Nortel T1 ACD Trunk Type Option	NT3R5804 A0657695	3.5" diskette / 1
MRS Version 3.00.00 Nortel ACD Trunk Type Option	NT3R5616 A0653023	3.5" diskette / 1
MRS Version 3.02 AT&T G3, Rolm & DMS Trunk Files	NT3R9827 A0684599	3.5" diskette / 1
MRS Version 3.02 Disk Mirroring Option	NT3R62AB A0684414	3.5" diskette / 1
MRS Version 3.02 Low-level Formatting Utility	NT2R69AA A0684420	3.5" diskette / 1
MRS Version 3.00 Disk Mirroring Emergency Boot Disk	NT23R75AA A0679426	3.5" diskette / 1
OPEN IVR 2.5 SCO Unix UOD381A Patch	NT3R9828 A0685641	3.5" diskette / 1
OPEN IVR 2.5 SCO Unix NET382E Patch	NT3R9829 A0685642	3.5" diskette / 1
OPEN IVR 2.5 SCO Unix UOD374A Patch	NT3R9832 A0685646	3.5" diskette / 1
OPEN IVR 2.5 SCO Unix EFS139OS Patch	NT3R9831 A0685645	3.5" diskette / 1

Table 6-4: IVR 2.01 to IVR 2.5 Upgrade diskettes

Component	Part number	Media / QTY
OPEN IVR 2.5 MRS/AP TTS/SR Conversion Utility	NT3R9830 A0685644	3.5" diskette / 1

SCO Operating System

Nortel IVR Release 2.5 uses SCO 3.0 operating system software.

Note: Some of the upgrade procedures for the MRS/AP and the AP require the SCO Unix Open Desktop serial number and activation key. Locate these items before proceeding with the upgrade.

System backup

Remember, a system backup should be performed prior to installing the upgrade on your system. In case of an error in the execution of the upgrade, you can revert to the backed-up image of your system. (Backups are also useful for restoring archived data, and restoring data in case of hard disk failure.) For information on backing up your system, see Chapter 8, "Backup procedures."

Section B: Upgrade procedures

Overview

This section provides the procedures necessary for upgrading your system from Nortel IVR 2.01/S to Nortel IVR Release 2.5, including upgrades for the options you have installed on your system.

There are two distinct paths for performing the upgrade—MRS and Options, or IVR Generator. You must follow the installation sequence as it is presented in this documentation. The path you follow depends on the configuration of your system. An MRS and Options software upgrade is applicable to the MRS/Rack, MRS/Tower, or MRS/AP. An IVR Generator software upgrade is applicable to the AP and MRS/AP.

ATTENTION

Before proceeding with any upgrade, Nortel recommends that you back up your system off-line. For information on making off-line backups, see Chapter 8, “Backup procedures.”

MRS and options upgrade procedures

Preparing an MRS with disk mirroring for upgrade

The upgrade procedure for an MRS with disk mirroring is different than for an MRS without disk mirroring. Use the following procedure before beginning Procedure 6-5, “MRS Base Package upgrade,” on page 6-22.

Procedure 6-3: Preparing an MRS with disk mirroring for upgrade

- 1 Log in to the MRS as `root`.
- 2 Type `maint shell` and press **<Enter>**.
- 3 Shut down the MRS. Type `shutdown -y -g0` and press **<Enter>**. When the system displays the message that it is safe to power off the MRS, power it off. For additional safety, unplug the MRS from the power source.

- 4** Identify the primary and secondary hard disks. To identify the primary and secondary hard disks do the following:

Each of the two identical hard disks has two jumper blocks, labeled J6 and J2. The settings of the jumper blocks for the primary and secondary hard disks are as follows:

Primary Hard Disk	J2	Jumpers on Terminator Enable and Terminator Power (factory default)
	J6	No jumper
Secondary Hard Disk	J2	Jumper on Terminator Power (factory default)
	J6	Jumper in position A0

See Figure 6-1, “SCSI ID settings for J6,” on page 6-18, and Figure 6-2, “Jumper settings for J2,” on page 6-19 for more information on jumper placement.

Figure 6-1: SCSI ID settings for J6

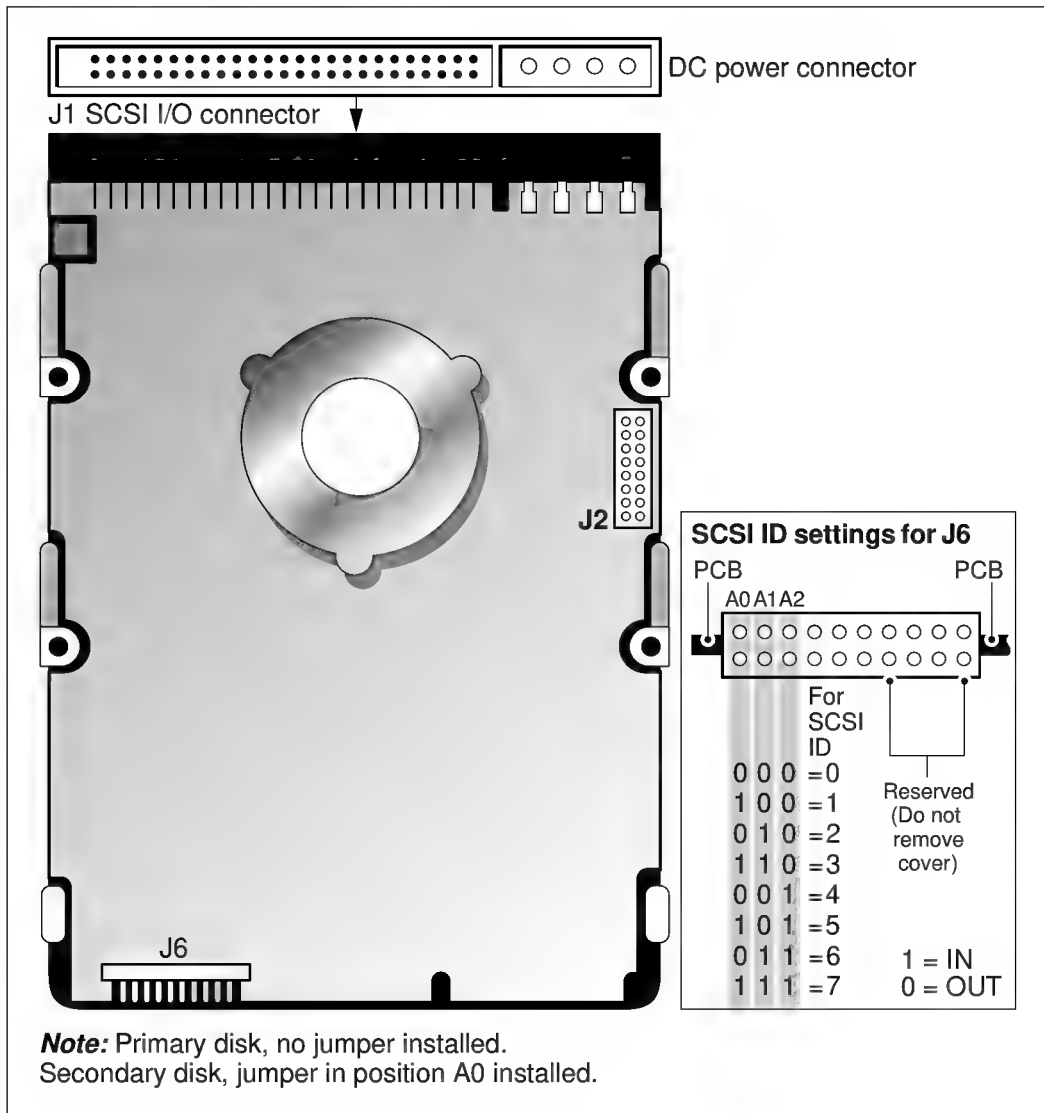
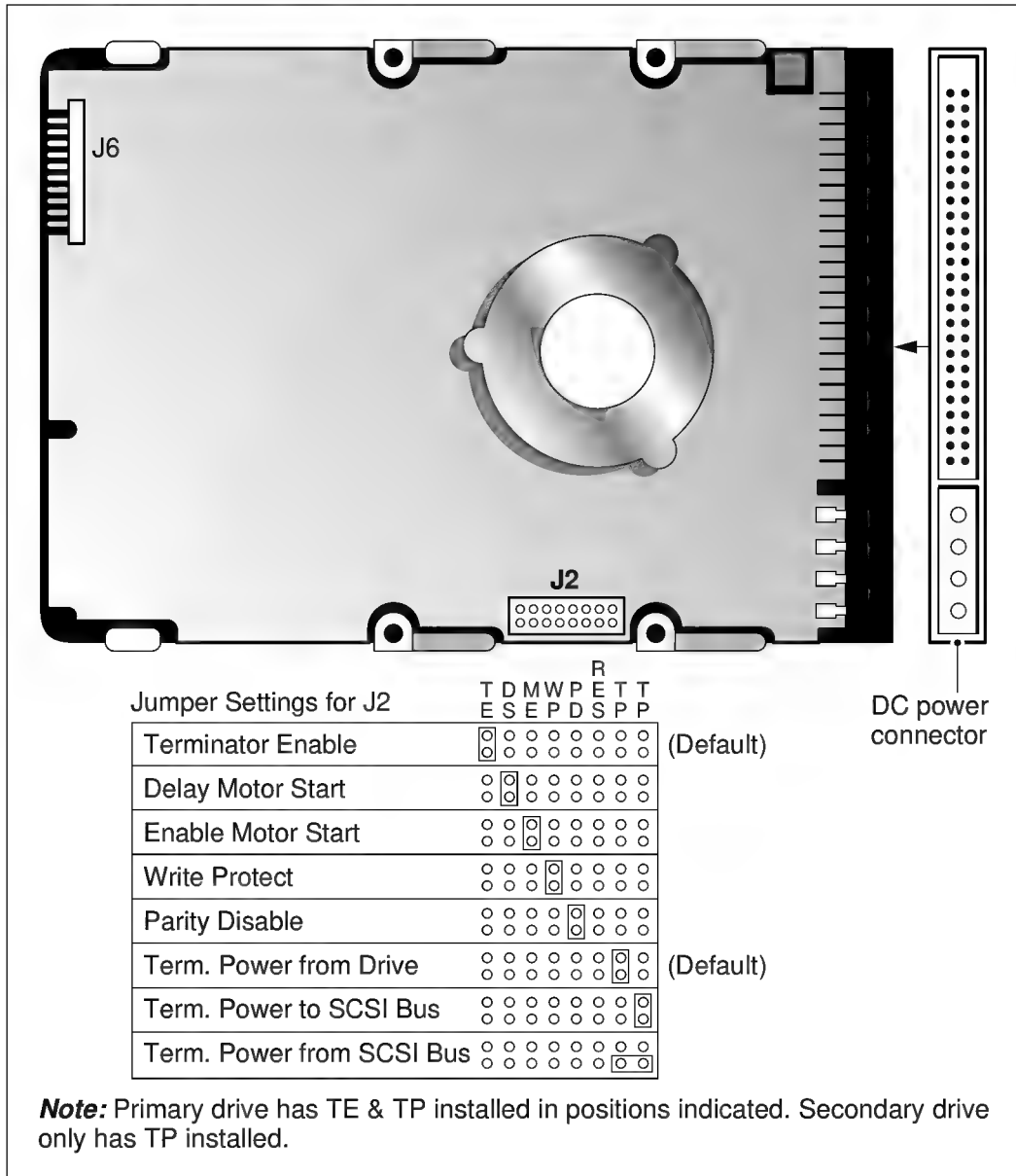


Figure 6-2: Jumper settings for J2



- 5 Disconnect the SCSI cable of the secondary hard disk.
The upgrade strategy is to complete the upgrade from Nortel IVR 2.01/S to 2.5/S on the primary hard disk. Only after making sure that the upgrade is successful, reconnect the secondary drive.
- 6 Plug the MRS into the power source and power on the system. The MRS automatically reboots. Because the synchronism between the two hard disks has been broken, the software will display error messages during bootup. Ignore those error messages.
- 7 Log in to the MRS as `root`.
- 8 When prompted to enter the terminal type, reply appropriately and press the **<Enter>** key.
- 9 When the `/sci>` main menu displays, type **install** and press **<Enter>**.
The system displays a warning message indicating that if you proceed any further, the currently running process will be shut down.
- 10 A prompt appears asking if you want to continue. Type **y** and press **<Enter>**.
The system replies:

```
Stopping the System Now!
```

The sci lists the install menu options, then displays the `/sci/install>` prompt.
- 11 Do not continue with the upgrade until the ready light on the front panel of the MRS begins flashing. This step ensures that all MRS processes have stopped.
When this step is completed, begin the upgrade.
- 12 When the system is powered on, continue with Procedure 6-5, "MRS Base Package upgrade," on page 6-22.

Preparing an MRS without disk mirroring and MRS/AP for upgrade

To prepare an MRS without disk mirroring for the upgrade, follow the steps in the procedure below. For the MRS/AP, begin at step 4.

Procedure 6-4: Preparing an MRS without disk mirroring or MRS/AP for upgrade

- 1 If the system is powered on, shut the system down by pressing the shutdown switch on the front panel of the MRS for 10 to 15 seconds until the green Ready light begins flashing.
- 2 When the green Ready light turns to a steady ON state and the red Major Alarm light turns on (the critical light on MRS/Rack systems), the system is down. Turn off the power to the system.
- 3 Power on the system and wait for the Ready light on the front panel to stop flashing.
- 4 Log in as `root`.
- 5 On the MRS/AP, type `/usr/vrs/tools/sci -b /usr/vrs` at the prompt and press **<Enter>** to go to the `sci` prompt.
- 6 When prompted to enter the terminal type, reply appropriately and press the **<Enter>** key.
- 7 When the `/sci>` main menu displays, type `install` and press **<Enter>**.

The system displays a warning message indicating that if you proceed any further, the currently running process will be shut down.

- 8 A prompt appears asking if you want to continue. Type `y` and press **<Enter>**.

The system replies:

`Stopping the System Now!`

The sci lists the install menu options, then displays the `/sci/install>` prompt.

- 9 For an MRS, do not continue with the upgrade until the ready light on the front panel of the MRS begins flashing. This step ensures that all MRS processes have stopped.

When this step is completed, begin the upgrade with Procedure 6-5, "MRS Base Package upgrade."

Upgrading the MRS base system

The first component of the system to be upgraded is the MRS Base package. The upgrade is distributed on two diskettes.

The MRS 3.02.02 Base package upgrade can be installed directly on top of the earlier release. To perform the upgrade on the MRS Base package, use the following procedure.

Procedure 6-5: MRS Base Package upgrade

- 1 At the `/sci/install>` prompt, type **package** and press **<Enter>**.
- 2 When prompted, insert the first of two diskettes labeled "MRS Version 3.02.02 Base Package Update" (marked 1 of 2) into the MRS floppy disk drive and press **<Enter>**.

Note: Disregard any error messages referring to **rm:** and **grep:** that you may see during this portion of the installation; they do not impact system operation.

The system displays the following messages:

```
Searching for the Size File
```

```
Install in progress
```

When the system finishes reading the data on the first diskette, the system displays the following message:

```
Reached end of medium on input.  
You may remove this floppy disk.  
To QUIT - strike <q> followed by <ENTER>  
To continue - insert floppy disk number 2 and strike the  
<ENTER> key.
```

- 3 When prompted, remove the first diskette from the floppy disk drive and insert the second diskette (marked 2 of 2) and press **<Enter>**. (To quit the upgrade process, type **q** and press **<Enter>**.)

The system displays the following messages:

```
Confirm
```

```
The TSP Base Package has already been installed. The  
new installation will now replace the original TSP  
Base Package files.
```

```
Strike ENTER when ready  
or ESC to stop.
```

- 4 Press <Enter> to continue.

The install continues, including the installation of files and checking of the run-time directories.

When the installation is complete, the system displays the following message:

```
Installation complete.
```

```
The installation of the TSP Base Package is now complete.
```

- 5 When the system displays the /sci/install> prompt, remove the diskette from the floppy drive.

The installation of the MRS 3.02.02 Base Package is now complete.

At this point, you can continue with the next upgrade.

Adding the MRS 3.02.02 Dialogic PTR 3427

Follow this procedure to add Dialogic PTR 3427 to the system.

Procedure 6-6: Adding the MRS 3.02.02 Dialogic PTR 3427

- 1 At the /sci/install> prompt, type **package** and press <Enter>.
- 2 When prompted, insert the installation floppy diskette labeled "MRS Version 3.02.02 Dialogic PTR 3427" and press <Enter> to continue. (To quit the upgrade process, type **q**.)

The system displays the following message:

```
Searching for the Size file
```

```
Install in progress
```

```
Dialogic Point Release for PTR#3427
```

```
Copyright(c) 1991 - 1996 Dialogic Corp.
```

```
All Rights Reserved
```

```
Press return to continue....
```

Note: Disregard any error messages referring to **rm:** and **grep:** that you may see during this portion of the installation; they do not impact system operation.

- 3 When prompted, press **<Enter>** to continue.

The system displays the following messages:

```
The following driver file
-/etc/conf/pack.d/sbabd/Driver.o
will be saved as
-/etc/conf/pack.d/sbabd/Driver.org
In case of problem with new Driver,
copy Driver.org to Driver.o in
/etc/conf/pack.d/sbabd directory, rebuild the kernel,
and reboot the system

Do you wish to continue? [yn]?
```

- 4 When prompted, type **y** to continue with the upgrade.

The system displays the following messages:

```
Installing drivers...
/etc/conf/pack.d/sbabd/Driver.o

The Dialogic Point Release for PTR #3427
package installation now requires a UNIX system kernel
rebuild.

Do you wish to build the kernel now [yn]?
```

Note: The kernel rebuild is not necessary at this time if you are continuing with the upgrade. The kernel rebuild must be done before rebooting the system.

- 5 When prompted, type **n** and press **<Enter>** to bypass the rebuild.

The system displays the following messages:

```
The Dialogic Point Release for PTR #3427
package will not be installed until the next kernel build.
```

- 6 When prompted, press **<Enter>** to continue.

The system displays the following messages:

```
The installation of the Dialogic Point Release for PTR
#3427 is now complete.
```

```
/sci/install>
```

- 7 When you are returned to the `sci/install>` prompt, remove the diskette from the floppy drive.

Installation of the Dialogic PTR 3427 is now complete. Continue with the next upgrade.

Span Driver (MRS only)

The MRS Span Driver is responsible for the system panel display. Do not install this driver on the MRS/AP.

Install the new version of the Span Driver on the MRS using the following procedure.

Procedure 6-7: Installing the MRS Span Driver

- 1 At the `/sci/install>` prompt, type **package** and press **<Enter>**.
- 2 When prompted, insert the installation floppy diskette labeled "MRS Version 3.02.00 Span Driver" and press **<Enter>** to continue. (To quit the upgrade process, type **q**.)

The system displays the following message:

```
Searching for the Size file
          Install in progress
Installing the System Panel Driver...
```

```
Do you wish to relink the Kernel Now? (y/n) [y]:
```

- 3 When prompted, type **n** and press **<Enter>** to bypass the rebuild.

Note: The kernel rebuild is not necessary at this time if you are continuing with the upgrade. The kernel rebuild must be done before rebooting the system. To rebuild or relink the kernel manually, use the `/sci/install link` option. Refer to the *IVR Generator 2.0/S Service Console Interface Reference Manual* for information on the use of `/sci` commands.

The system displays the following message:

```
The installation of the TSP System Panel Driver is
now complete.
```

```
/sci/install>
```

- 4 When you are returned to the `/sci/install>` prompt, remove the diskette from the floppy drive.

Installation of the Span Driver is now complete. Continue with the next upgrade.

International Country Parameters

Install the new version of the International Country Parameters using the following procedure.

Procedure 6-8: Installing International Country Parameters

- 1 At the `/sci/install>` prompt, type **package** and press **<Enter>**.
- 2 When prompted, insert the installation floppy diskette labeled "MRS Version 3.02.01 International Country Parameters" and press **<Enter>** to continue. (To quit the upgrade process, type **q**.)

The system displays the following messages:

```
Searching for the Size File
Install in progress
```

```
Confirm
```

```
The TSP International Country Parameters has already
been installed. The new installation will now replace
the original TSP International Country Parameters files.
```

```
Strike ENTER when ready
or ESC to stop.
```

Note: Disregard any error messages referring to **rm:** and **grep:** that you may see during this portion of the installation; they do not impact system operation.

- 3 To continue, press **<Enter>**.

The system displays the following messages:

```
Installing files...
```

```
Voicetek Internationalization Utility
```

```
Copyright (c) 1991-1996 Voicetek Corp.
All Rights Reserved
```

```
Press return to continue...
```


- 4 To continue, press **<Enter>** when prompted.

The system displays the following messages:

```
The system is presently configured using Mexico
parameters.
```

```
Do you wish to change the Mexico parameters? [y/n]:
```

Note 1: The example above shows a system that is set up with Mexico country parameters. It is not likely that you would want to change the country parameters during this upgrade. If, for some reason, you need to make changes to the country parameters, use the `/sci/install/country` command to make changes after the upgrade is complete. For information on `/sci` commands, refer to the chapter “Command Reference,” in the *IVR Generator 2.0/S Service Console Interface Reference Manual*.

Note 2: Countries may be loaded only if the appropriate firmware has been installed.

- 5 When prompted to make changes to the country parameters, type **n** and press **<Enter>** to continue.

The system displays the following messages:

```
No changes have been made to the
Voicetek Parameters.
```

```
Installation complete.
```

- 6 When the system displays the `/sci/install>` prompt, remove the diskette from the floppy drive.

The installation of the MRS 3.02.01 International Country Parameters is now complete. Continue with the next upgrade.

Upgrading the MRS system configuration

To upgrade the system configuration for your system, use either the “MRS Version 3.02.02 Distributed” or “Folded System Configuration” diskette. The diskette you use depends on the system type—use Distributed for the MRS/Rack and MRS/Tower, and Folded for the MRS/AP.

Procedure 6-9: Upgrading the MRS system configuration

- 1 At the `/sci/install>` prompt type **package** and press **<Enter>**.
- 2 If your system is an MRS/Rack or MRS/Tower, use the diskette labeled "MRS Version 3.02.02 Distributed System Configuration."

OR

If your system is an MRS/AP, use the diskette labeled "MRS Version 3.02.02 Folded System Configuration."

- 3 Insert the appropriate diskette into the floppy drive and press **<Enter>** to continue when prompted.

The system displays the following messages:

```
Searching for the Size file
```

```
Install in progress
```

Next, the system clears the screen. After a moment, the system displays the following message:

```
Updating system environment...
```

```
!!!!!! WARNING !!!!!
```

```
Incorrect answers to the following questions may disable  
your VRU from booting-up.
```

```
If you are not sure about the hardware configuration of  
this VRU, consult your System Administrator or Voicetek  
Customer Service!
```

Note: If you require customer service, call Nortel.

- 4 At the following prompt, identify whether your system is SCSI- or IDE-based:

```
Is this machine SCSI based (s) or IDE based (i) []:s
```

Type **s** and press **<Enter>**.

For a SCSI-based system, you are prompted to free up IRQ 14. The system will attempt to free up an IRQ that may be needed later by another option. The system displays the following message:

```
You have selected SCSI, if you wish to remove the IDE driver  
to free up IRQ 14 to be used by other options enter (y)  
Do you wish to free IRQ 14? (y/n):
```

- 5 Type **y** and press **<Enter>**.

The system displays the following message:

```
Freeing IRQ 14.  
Updating the tunable kernel parameters  
The kernel has been retuned.
```

Then the system displays the following question:

```
Do you wish to relink the Kernel Now? (y/n) [y]:
```

- 6 Type **y** to relink the kernel and press **<Enter>**.

The system displays the following message:

```
Please wait - Relinking the Kernel Now  
  
The UNIX Operating System will now be rebuilt.  
This will take a few minutes. Please wait.  
  
Root for this system build is /.  
  
Backing up /unix to /unix.old  
Installing new /unix  
Setting up new kernel environment  
  
Installation complete.  
  
The installation of the TSP Distributed System  
Configuration is now complete.
```

Note: For the MRS/AP, the last message to display is

The installation of the TSP Folded System Configuration is now complete.

- 7 When the system displays the `/sci/install>` prompt, remove the diskette from the floppy drive.

The installation of the system configuration upgrade is complete.

D/41ESC firmware patch for the MRS and MRS/AP

This new firmware replaces previous D/41ESC firmware which enables the use of the D/41ESC card on the PEB bus.

To install the D/41ESC firmware patch, use the following procedure.

Procedure 6-10: Installing the D/41ESC firmware patch

- 1 At the `/sci/install` prompt, type **package** and press **<Enter>**.
- 2 Insert the diskette labeled "MRS Version 3.02.00 D/41ESC Firmware Patch" into the floppy drive and press **<Enter>** to continue. (To quit the upgrade process, type **q**.)
- 3 When the firmware patch is installed, continue with the next upgrade.

Disk Mirroring Option

Install this option only if disk mirroring is purchased. Disk mirroring is available on the MRS only.

To install the Disk Mirroring Option, use the following procedure.

Procedure 6-11: Installing the disk mirroring option

- 1 At the `/sci/install` prompt, type **package** and press **<Enter>**.
- 2 Insert the diskette labeled "MRS Version 3.02 Disk Mirroring Option" into the floppy drive and press **<Enter>** to continue. (To quit the upgrade process, type **q**.)
- 3 When the option is installed, continue with the next upgrade.

D/81A firmware patch for the MRS and MRS/AP

To install the D/81A firmware patch, use the following procedure.

Procedure 6-12: Installing the D/81A firmware patch

- 1 At the `sci/install` prompt, type **restore** and press **<Enter>**.
The system displays the following message:

```
Restoring Data Files from Backup Floppy
```
- 2 Insert the diskette labeled "MRS Version 3.02.00 D/81A Firmware Patch" into the floppy drive.

- 3 At the prompt to confirm that the diskette is ready in the drive, press **<Enter>** to install the patch.

When the install is complete, the system displays the following message:

Done Reading Files.

The firmware patch is installed. Continue with the next upgrade.

Installing the Line side T1 Trunk file

To install the Line side T1 Trunk file, use the following procedure.

Procedure 6-13: Installing the Line side T1 Trunk file

- 1 At the `sci/install` prompt, type **shell** and press **<Enter>**.
- 2 Insert the diskette labeled "MRS Version 3.02 Line side T1 Trunk File" into the floppy drive.
- 3 To extract the file from the diskette, type **tar xv6** and press **<Enter>**.
- 4 When the extract is complete, remove the diskette from the floppy drive.
- 5 To return to the `sci/install` prompt, type **exit** and press **<Enter>**.

Installing the Nortel T1 ACD Trunk Type Option file

Note: Install on the MRS/AP only.

To install the Nortel T1 ACD Trunk Type Option file, use the following procedure.

Procedure 6-14: Installing the Nortel T1 ACD Trunk Type Option file

- 1 At the `sci/install` prompt, type **shell** and press **<Enter>**.
- 2 Insert the diskette labeled "MRS Version 3.00.02 Nortel T1 ACD Trunk Type Option" into the floppy drive.
- 3 To extract the file from the diskette, type **tar xv6** and press **<Enter>**.
- 4 When the extract is complete, remove the diskette from the floppy drive.
- 5 To return to the `sci/install` prompt, type **exit** and press **<Enter>**.

Installing the Nortel Analog ACD Trunk Type Option file

Note: Install on the MRS/AP only.

To install the Nortel Analog ACD Trunk Type Option file, use the following procedure.

Procedure 6-15: Installing the Nortel Analog ACD Trunk Type Option file

- 1 At the `sci/install` prompt, type **shell** and press **<Enter>**.
- 2 Insert the diskette labeled "MRS Version 3.00.00 Nortel ACD Trunk Type Option" into the floppy drive.
- 3 To extract the file from the diskette, type **tar xv6** and press **<Enter>**.
- 4 When the extract is complete, remove the diskette from the floppy drive.
- 5 To return to the `sci/install` prompt, type **exit** and press **<Enter>**.

Installing MRS and VSN Backup scripts

To install the MRS and VSN backup scripts, use the following procedure.

Note: If you have already installed this diskette (for example, in order to perform a backup), you do not need to reinstall this diskette.

Procedure 6-16: Installing MRS and VSN backup scripts

- 1 At the `sci/install` prompt, type **restore** and press **<Enter>**.
- 2 Insert the diskette labeled "MRS Version 3.02 MRS HD & VSN Backup Scripts" into the floppy drive and press **<Enter>**.
- 3 When the extract is complete, remove the diskette from the floppy drive and continue with the next upgrade.

AT&T G3, Rolm, and DMS100 Trunk files

Use the following procedure to install the AT&T G3, Rolm, and DMS100 Trunk files.

Procedure 6-17: Installing AT&T G3, Rolm, and DMS100 Trunk files

- 1 At the `sci` prompt, type **shell** and press **<Enter>**.
- 2 Insert the diskette, labeled "MRS Version 3.02 AT&T G3, Rolm, and DMS100 Trunk Files," into the floppy drive.
- 3 Type **tar xv6** at the prompt and press **<Enter>**.
- 4 When the installation is complete, remove the disk from the floppy drive.
- 5 To return to the `sci/install` prompt, type **exit** and press **<Enter>**.
- 6 Continue with the next upgrade.

MRS/AP TTS/SR Conversion Utility

Use the following procedure to install the MRS/AP TTS/SR Conversion Utility.

Procedure 6-18: Installing the MRS/AP TTS/SR Conversion Utility

- 1 At the `sci` prompt, type **shell** and press **<Enter>**.
- 2 Insert the diskette, labeled "OPEN IVR 2.5 MRS/AP TTS/SR Conversion Utility," into the floppy drive.
- 3 Type **tar xv6** at the prompt and press **<Enter>**.
- 4 When the installation is complete, remove the disk from the floppy drive.
- 5 To return to the `sci/install` prompt, type **exit** and press **<Enter>**.
- 6 Continue with the next upgrade.

E1 CAS/ISDN PRI for the MRS and MRS/AP

E1 CAS/ISDN PRI protocols are used in conjunction with the Aculab E1 card.

Note: Install this option in all countries except Canada and the United States.

There are two protocols associated with this option:

- MRS 3.02.01 CAS Signaling Option
- MRS 3.02.02 Enhanced DPNSS Signaling Option

One or both may be installed separately or in conjunction with one another. To install and activate the protocols, use the following procedures.

Procedure 6-19: Installing E1 CAS/ISDN protocols

- 1 At the `sci/install` prompt, type **package** and press **<Enter>**.
- 2 Insert the applicable protocol diskette into the floppy drive and press **<Enter>**. For example to install CAS, insert the diskette labeled "MRS 3.02.01 CAS signalling option."

The system displays the following messages:

```
Installing files.  
Install complete.
```


- 3 When the installation is complete, remove the diskette from the floppy drive and continue with the following procedure to activate the protocol.

Procedure 6-20: Activating the protocol

- 1 In the `/sci/install` level, select the `country` command.
- 2 If you want to change the country setting, type `y` and press **<Enter>**. (**Note:** If the country is set correctly, type `n` and press **<Enter>** to retain the setting and return to the `sci` prompt and continue with the next upgrade.)
- 3 In response to the use of Aculab card, select `y`.
- 4 Indicate the number of ports with this Aculab card; `30`, or `60`.

A menu of countries and protocols will be displayed. Make the appropriate selection. Based upon the protocol selected, additional information will be required:

China, Malaysia, Mexico

All use the CAS protocol

- number of DDI digits, `0 – 30`
- number of CLI digits, `0 – 30`
- strip calling line category digit, `y` or `n`

DPNSS

- use of enhanced driver, `y`
- use of either A/X or B/Y bits `a` or `b`

Note: For information on prompts for DPNSS, refer to the *Aculab-Based E1 CAS/ISDN PRI Signaling Guide* (P0869328).

- 5 When you have completed the protocol activation, continue with the next upgrade.

Completion of the MRS base system package upgrades

This completes the installation of all MRS Base system package upgrades. The options can now be upgraded. If no option upgrades are necessary, restart the system.

Procedure 6-21: Restarting the system

- 1 At the `sci/install` prompt, type **restart** and press **<Enter>**.

The system displays messages notifying you that files are being verified and checked, and then begins the restart.

When the system is restarted, continue with the final steps in the upgrade (see “Final steps in the upgrade process” on page 6-53).

Options

This section describes the upgrade procedures for the following options:

- Text-To-Speech (TTS)
- Fax
- Speech recognition (ASR)

Text-To-Speech

To upgrade the Text-To-Speech (TTS) option, follow these steps.

Note: Install this upgrade only if the customer has purchased the option.

Procedure 6-22: Upgrading the TTS option

- 1 At the `/sci/install>` prompt, type **package** and press **<Enter>**.
- 2 Insert the diskette labeled “MRS Version 3.02.00 L&H TTS Option for Antares” in the drive and press **<Enter>**.

The system displays the following messages to inform you of the installation's progress.

Searching for file size

Install in progress

Note: Disregard any error messages referring to **rm:** and **grep:** that you may see during this portion of the installation; they do not impact system operation.

3 When the system displays the message

Confirm

The TSP ATTS Option has already been installed. The new installation will now replace the original TSP ATTS Option files.

Strike ENTER when ready
or ESC to stop.

press **<Enter>**.

The system displays the following messages:

Installing files

Updating system environment...

Installation complete.

The installation of the TSP ATTS Option
is now complete.

/sci/install>

4 When the system displays the /sci/install> prompt, remove the diskette from the floppy drive.

If you have further option upgrades to perform, continue with the next upgrade. If this is the last option you are upgrading at this time, you must perform the Nortel customization of the software (see "Nortel Customization procedure" on page 6-58).

Fax Option

The MRS Version 3.02.02 Fax Option upgrade installation consists of one installation disk, labeled "MRS Version 3.02.02 BrookTrout Fax Option."

Dialogic Fax cards come in the 1 Mbyte and 2 Mbyte variety; Nortel uses the 1 Mbyte card only. Regardless of the memory capacity of the board, IRQ 14 is selected, and the kernel must be relinked.

Note: Install this upgrade only if the customer has purchased the option.

Procedure 6-23: Upgrading the Fax Option

1 At the sci/install> prompt, type **package** followed by the **<Enter>** key. The system displays the following messages:

Insert the install floppy - type q to quit or hit ENTER
to continue:

- 2 Insert the diskette labeled "MRS Version 3.02.02 Brooktrout Fax Option" into the floppy drive and press **<Enter>** (or type **q** to abort the upgrade procedure).

The system displays messages during the installation.

- 3 When you are prompted to choose a vector (prompt "Please choose one of these vectors [11 12 13 14 15] ?"), choose 14 for systems with SCSI disk controllers.

Note: Make sure that the interrupt vector that you choose is unused; the recommended vector is 14 for systems with SCSI disk controllers.

The following messages display:

```
*****
* The driver will be configured to use IRQ14. Please make
* sure all installed boards are jumpered to this vector.
*****

*****
* 1 Mbyte cards do not support overlays!
* If you are unsure about having 1 Mbyte or 2 Mbyte card
* please contact Voicetek customer support.
*****
```

- 4 At the following system prompt,

Are you using 1 Mbyte Fax Card [yn]?

type **y** for yes.

The system displays the following messages:

The configuration is now assumed to be correct.

Do you wish to continue the installation [yn]?

- 5 If the configuration is correct, type **y** at the prompt to continue with the upgrade installation.

- 6 The system then prompts you to do a kernel relink. If this is the last option to upgrade, type **y** to do the kernel relink now. If you have other options to upgrade, you can do a kernel relink now or wait until all upgrades are completed (type **n** to bypass the kernel relink).

For this example, relinking the kernel now has been chosen.

The system displays the following messages:

```
Please wait - relinking the Kernel Now
```

```
The UNIX Operating System will now be rebuilt.  
This will take a few minutes. Please wait.
```

```
Root for this system build is /.....
```

```
Installation complete.
```

```
The installation of the MRS Version 3.02.01 Brooktrout Fax  
Option is now complete.
```

- 7 When the system displays the `/sci/install>` prompt, remove the diskette from the floppy drive.

If you have further option upgrades to perform, continue with the next upgrade. If this is the last option you are upgrading at this time, you must perform the Nortel customization of the software (see “Nortel Customization procedure” on page 6-58).

ASR Option

The ASR option upgrade for VR/160 consists of one diskette labeled “MRS Version 3.02.01 VCS ASR Option.” This upgrade can be installed over the current software.

Note: Install this upgrade only if the customer has purchased the option.

Procedure 6-24: Upgrading the ASR option

- 1 At the `sci/install>` prompt, type **package** and press **<Enter>**.
- 2 When prompted, insert the diskette labeled "MRS Version 3.02.01 VCS ASR Option" into the floppy drive, then press **<Enter>**.

The system displays the following messages to inform you of the installation's progress.

```
Searching for file size
```

```
Install in progress
```

Note: Disregard any error messages referring to **rm:** and **grep:** that you may see during this portion of the installation; they do not impact system operation.

- 3 When the system displays the message

```
Confirm
```

```
The TSP VCS Option has already been installed. The  
new installation will now replace the original TSP  
VCS Option files.
```

```
Strike ENTER when ready  
or ESC to stop.
```

press **<Enter>**.

The system displays the following messages:

```
Installing files
```

```
Updating system environment...
```

```
Installation complete.
```

```
The installation of the TSP VCS Option  
is now complete.
```

```
/sci/install>
```

- 4 When the system displays the `/sci/install>` prompt, remove the diskette from the floppy drive.

ATTENTION

If you have further option upgrades to perform, continue with the next upgrade. If this is the last option you are upgrading at this time, you must perform the Nortel customization of the software (see “Nortel Customization procedure” on page 6-58).

IVR Generator 2.5/S

This section provides information to upgrade the three components of IVR Generator 2.5/S—IVR Generator 2.00.12 software, Report Writer, and the ADSI User function (the ADSI option is purchased separately).

IVR Generator Upgrade

The new release of IVR Generator, version 2.00.12, is installed directly on top of the previous release. To extract the install file from the software diskettes, follow the steps in Procedure 6-25. To run the IVR Generator 2.00.12 install file, follow the steps in Procedure 6-26.

Note 1: Before proceeding with any upgrade, Nortel recommends that you back up your system off-line. For information on making off-line backups, see Chapter 8, “Backup procedures.”

Note 2: If IVR Generator software is currently installed and running on your system, then the IVR Generator software is halted by the install script.

Extracting the installation file from the diskette

Use the following procedure to extract the installation file from the IVR Generator 2.00.12 software diskettes.

Procedure 6-25: Extracting the installation file from the software diskettes

- 1 Press **Ctrl-Alt-F1** to access the root console.
- 2 Log in as **root** (not using **su**).
- 3 Shut down to single user mode. To shut down to single user mode, type **init 1** at the prompt and press **<Enter>**.

Various prompts are displayed. If you are prompted to enter the root password or to press the key sequence **<Control><D>**, enter the root password. When the shutdown is completed, go to the next step.
- 4 At the prompt, type **mountall** and press **<Enter>**.

The system displays the mounted partitions.
- 5 Type **cd /u/nortel** to change to the **/u/nortel** directory.
- 6 Insert the first of the IVR Generator 2.00.12 software diskettes, labeled “IVR Generator Version 2.00.12 for SCO ODT 3.0”, into the drive of the Application Processor.

- 7 At the shell prompt, type the following command:

```
tar -xvf /dev/fd0 install
```

Press <Enter> to extract the installation file from the media.

- 8 Leave the diskette in the drive and continue with Procedure 6-26, "Installing IVR Generator 2.00.12."

Use the following procedure to install the IVR Generator 2.00.12 software using the installation file.

Procedure 6-26: Installing IVR Generator 2.00.12

- 1 At this point, the first of the IVR Generator 2.00.12 software diskettes, labeled "IVR Generator Version 2.00.12 for SCO ODT 3.0", should be in the floppy diskette drive.

- 2 To execute the IVR Generator 2.00.12 installation process, type **./install** at the prompt and press <Enter>.

If you do not specify an account name, the system displays the following message:

```
IVR Generator is being installed in -> /usr/nortel <-
directory
```

```
For user -> nortel <-
```

```
Is this correct? [y/n]
```

- 3 Type **y** and press <Enter>. (If the information is incorrect, type **n**, press <Enter>, and follow the system prompts.)

The system displays the following selections:

```
Please select appropriate action:
```

```
1. Extract files from distribution media and execute
configuration script.
```

```
2. Execute configuration script without extracting files.
```

```
Please enter your selection or q to quit[ ]:
```

- 4 To continue with the install, type **1** at the prompt and press <Enter>.

The system displays the following list of valid installation drives:

```
1. Floppy Drive A: (3 1/2 inch High Density 1.44 Mb)
```

```
2. Floppy Drive B: (3 1/2 inch High Density 1.44 Mb)
```

```
3. Specify other device
```

```
Please select installation device[ ]:
```

- 5 To select the installation device where you inserted the diskette, type **1** and press **<Enter>**.

The distribution media includes more than one floppy diskette. The system prompts you to insert each diskette as follows:

Please insert the installation floppy and press Return.

- 6 The floppy diskette is already in the drive. Press **<Enter>**.

The system displays the following message:

Please wait... Extracting files.

- 7 The system prompts you to insert the next diskette:

Please insert a new volume, then press RETURN.

Remove the disk that is currently in the drive and insert the next floppy disk (in order) at each prompt. A minute or two elapses between each prompt.

- 8 After you insert the *last* diskette, press **<Enter>**.

The system begins uncompressing files.

Then the directory structure is verified for the execution of IVR Generator software on this workstation. Necessary directories that do not exist are created. The auto reboot files are installed, user data files are distributed to their proper system locations, and the trunk initialization file is created.

Once this part of the installation is completed, the system begins installing the configuration files. The system displays the following prompt:

Are you running XWindows on your console [y/n]

- 9 Type **y** and press **<Enter>**. Otherwise, type **n** and press **<Enter>**.

The system displays the following prompt:

Enter FULL path name for the device where hardware key is installed [/dev/rbsk0]:

- 10 Press **<Enter>** to accept the default of /dev/rbsk0.

The system displays some messages and a then the next prompt.

- 11 IVR Generator 2.5/S supports remote host interface. To use this functionality, a host communication board must currently be installed on the AP. At the prompt

Please select host communication vendor []:

type 1 to select the remote host interface using Apertus remote host communications or 3 to select the default of no host communication (VT-100 connectivity); press <Enter> to continue.

The system checks the kernel configuration and then sets file permissions.

Note: The following parameters are modified and relinked with the kernel; the list of parameters is not displayed by the system.

Table 6-5: Kernel parameters

Parameter	Value	Comments
NREGION	700	Number of regions allocated
NINODE	500	Maximum number open inodes system-wide
NFILE	500	Maximum number of open files system-wide
NS5INODE	500	Must be the same as NINODE
NCALL	100	Call_out table size
NCLIST	400	Number of character list buffers
NPROC	200	Maximum number of processes system-wide
MAXUP	60	Maximum number of processes per user
MSGMAP	400	Specifies the number of entries in the message memory map
MSGMNB	24576	Maximum number of bytes that all the messages in one message queue can occupy
MSGMNI	128	Maximum number of message queues system-wide (
MSGSEG	16384	Number of MSGSSZ segments of memory allocated at kernel start-up for holding messages

Table 6-5: Kernel parameters

Parameter	Value	Comments
MSGTQL	1024	Maximum number of messages stored by the kernel (unread messages)
NSTREAM	168	Maximum number of stream head buffers
NQUEUE	800	Maximum number of stream queues
NBLK4096	20	Maximum number of 4096 byte stream buffers
NBLK2048	40	Maximum number of 2048 byte stream buffers
NBLK1024	48	Maximum number of 1024 byte stream buffers
NBLK512	72	Maximum number of 512 byte stream buffers
NBLK256	300	Maximum number of 256 byte stream buffers
NBLK128	450	Maximum number of 128 byte stream buffers
NBLK64	400	Maximum number of 64 byte stream buffers
NBLK16	200	Maximum number of 16 byte stream buffers
NBLK4	256	Maximum number of 4 byte stream buffers
SHMMAX	2024000	Maximum shared-memory segment size
SHMALL	2024	Maximum number of in-use shared-memory text segments
FLCKREC	500	Number locks system-wide
NMUXLINK	64	Maximum number of multiplexer links
NSTRPUSH	9	Maximum number of modules on stream
NSTREVENT	256	Maximum init stream event structures
MAXUMEM	8192	Maximum - memory pages allocated to user
SEMMSL	35	Number of semaphores per ID

- 12 Next, the system displays messages concerning the `admingen` tool (only if it is contained in the `tools` directory). The `admingen` tool allows users other than `root` to start and stop IVR Generator.

If you type **y** at the prompt "Do you wish to activate the `admingen` tool [y/n]" and press **<Enter>**, the owner of the file is set to `root` and the `bit` `suid` is set. If you type **n** at the prompt and press **<Enter>**, the owner of the file is `Nortel`.

Type **y** or **n** at the prompt and press **<Enter>**.

The system continues with and completes the upgrade installation.

Note: Before you use any applications with IVR Generator 2.5/S, you must update them; use Procedure 6-41, "Upgrading applications to the Nortel IVR Release 2.5 level," on page 6-61.
- 13 Remove the diskette from the floppy drive and reboot your system.
- 14 When the system is available, log into the account where IVR Generator 2.00.12 was just installed.

Adding manual pages to the AP

Manual pages are added using a separate tape.

Note: Manual pages need to be added to the AP only; manual pages were added to the MRS/AP in Nortel IVR 2.01/S.

Use the following procedure to add manual pages to the AP.

Procedure 6-27: Adding manual pages

- 1 Log in as `root` on the AP.
- 2 Create a `.manpages` directory.
 - a Type **`cd /u`** and press **<Enter>**.
 - b Type **`mkdir .manpages`** and press **<Enter>**.
- 3 Edit the `/etc/default/man` file using the `vi` editor. Add the entry

`MANPATH=/usr/man:/u/.manpages/usr/man`

and exit the `vi` text editor. (To save the file and exit the `vi` editor, type **wq** and press **<Enter>**.)
- 4 Insert the tape labeled "Open IVR 2.5 SCO ODT 3.0 Man Pages" into the tape drive.

- 5 To extract the manpages information from the tape, at the prompt type `cd /u/.manpages;tar xvf /dev/rct0` and press **<Enter>**.

The manual pages are added to the system. Continue with the next upgrade.

Installing the AP and MRS/AP HD Backup script

To install the AP and MRS/AP HD backup script, use the following procedure.

Note: If you have already installed this diskette (for example, in order to perform a backup), you do not need to reinstall this diskette.

Procedure 6-28: Installing the AP HD Backup script

- 1 Insert the diskette labeled "AP & MRS/AP HD Backup Script" into the floppy drive.
- 2 At the `sci/install` prompt, type **restore** and press **<Enter>**.
The script is installed.
- 3 Remove the diskette from the floppy drive.

Report Writer

The upgrade of Report Writer consists essentially of reinstalling the software. Prior to reinstalling, take the following precautions:

- If this is an upgrade or overlay installation and you use the same directory under which the existing Report Writer is installed, make a backup copy of the previously installed Report Writer software.
- Remove old files.
- Remove previously installed Report Writer software.

Removing old files

- 1 Log in to the AP as `root`.
- 2 Type `cd /u/nortel/exe` at the prompt and press **<Enter>** to change the directory to `u/nortel/exe`.
- 3 Type `rm tables.file rwdefaults.dat` at the prompt and press **<Enter>**.

Removing all Report Writer software:

- 1 Type `rm -rf /u/nortel/fsreport` at the prompt and press **<Enter>**.

Record the name of the directory path for use during the installation process for IVR Generator 2.00.12. Continue with the Report Writer upgrade.

Upgrading Report Writer software

Use the following procedure to upgrade the Report Writer software.

Procedure 6-29: Upgrading Report Writer software

- 1 To create a scratch area in which to download the files from the media

- a Type `cd /tmp` at the prompt and press **<Enter>**.

- b Type `mkdir scratch` at the prompt and press **<Enter>**.

where `/tmp/scratch` is the directory path name for the directory used as a scratch area.

Note: You can delete this area from the system after the files are successfully installed.

- 2 Insert the first Report Writer installation diskette into the disk drive of the Application Processor.

At the shell prompt, type the following commands:

```
cd scratch
```

```
tar xvf /dev/fd0
```

Press **<Enter>**.

- 3 Repeat step 2 for the second diskette.
- 4 Remove the second diskette from the disk drive.
- 5 To install the upgrade software, type `./install` at the prompt and press **<Enter>**.

Note: If you abort the installation before it is complete, the files and directory already installed are automatically deleted. Resolve the problem and repeat the installation procedure.

- 6 When the installation begins, the system prompts you for four pieces of information:

- a Is there enough free space [y]
(At least 6 Mbytes of free disk space should be available.)
If yes, type **y** and press **<Enter>**. If no, type **n** to stop the installation. Free up space and begin the installation again.

The following three pieces of information are provided in your package on a separate sheet of paper:

- b Serial number: **serial_number**
 - c Key: **activation_key**
 - d Number of users: 1
- 7 After the information listed in the previous step is entered, the installation program prompts you to enter the directory specification where you will permanently install the files for Report Writer. At the prompt, Directory to install 4s-Report [/usr/local/fsreport], type **/u/nortel/fsreport** and press **<Enter>**.
 - 8 When the installation is complete, remove the scratch area you created for the install. At the prompt, type **rm -f /tmp/scratch** (where **/tmp/scratch** is the path name), and press **<Enter>**.
 - 9 Change to directory **/u/nortel/fsreport**.
 - 10 At the prompt, type **chmod 777 pardir** and press **<Enter>**.
 - 11 Continue with the Report Writer modifications.

Report Writer modifications

Prior to using the Report Writer, make sure the following modifications are made.

Procedure 6-30: Modifying Report Writer

- 1 Add and export environment variables for Report Writer by editing the appropriate lines in file `/u/nortel/sys_files/report.conf` to include the following **bolded** items:

```
export FS_REPORT_HOME ....  
FS_REPORT_HOME=/u/nortel/fsreport  
.  
.  
export REPORT_EDITOR EDITOR_FLAG REPORT_WRITER  
REPORT_FLAG RWDEFAULTS  
.  
.
```

- a Add the following line at the end of the file:

```
RWDEFAULTS=$VOICE_HOME/exe
```

- b Save the file and exit the vi editor. To save and exit, type **wq** and press **<Enter>**.

- 2 Ensure the following entry exists in the file `/u/nortel/.profile`:

```
. sys_files/report.conf
```

Use vi or another editor to view this file. Continue with the next procedure.

Synchronizing VSN data files

Follow this procedure to guarantee that the VSN data files match the contents of the disks on each MRS. Each MRS in the system has a separate VSN data file. Therefore, you must execute this procedure separately for each affected MRS, and run each procedure after the completion of the IVR Generator upgrade.

Note: IVR Generator should not be running during this procedure. Use the following steps to stop (and restart) IVR Generator.

Procedure 6-31: Synchronizing VSN data files

- 1 Log in to the AP as `nortel`.
- 2 Type **gen stop** at the prompt, and press **<Enter>**.
(To restart IVR Generator, type **gen start** at the prompt, and press **<Enter>**.)

- 3 To move to the IVR Generator home directory (`/u/nortel`), type `cd /u/nortel` at the UNIX shell prompt, and press **<Enter>**.
- 4 At the prompt, type `cd sys_files` and press **<Enter>**.
- 5 At the prompt, type `vsn -v -f <filename> -n <node_name>` and press **<Enter>**.

where *filename* is the name of the VSN data file to be updated. VSN data files are named `vsnvru number .data`.

`vsn1.data` for MRS #1
`vsn2.data` for MRS #2

node_name is the host name of the MRS.

The VSN files are synchronized. Continue with the final steps in the upgrade.

File Transfer Utility

The file transfer utilities `sz` and `rz` are contained on a separate floppy. To install on the AP or MRS/AP, use the following procedure.

Procedure 6-32: Installing the AP File Transfer Utility

- 1 Log in to the AP as `root`.
- 2 Insert the diskette labeled "IVR Generator 2.0/S SCO AP File Transfer Utility" into the drive.
- 3 To open a UNIX shell and extract the utilities, type

```
# tar xvf /dev/fd0
```

and press **<Enter>**.

SCO serialization (AP only)

The SCO serialization script `serialfix` is contained on a separate floppy. Install this serialization tool on the AP only by using the following procedure.

Procedure 6-33: Installing SCO serialization

- 1 Log in to the AP as `root`.
- 2 Insert the diskette labeled "IVR Generator 2.0/S SCO Unix Serialization Script" into the drive.

- 3 Open a UNIX shell and extract the utility with

```
# tar xvf /dev/fd0
```

Final steps in the upgrade process

SCO Unix Year 2000 patch

The Year 2000 patch avoids problems in the Operating System relating to the turn of the century.

To install the SCO Unix Year 2000 patch on the MRS, MRS/AP, or AP, follow this procedure.

Note: The MRS must have a terminal connection for patch installation.

Procedure 6-34: Installing the Year 2000 patch

- 1 Log in to the `root` account. The root password for the MRS is `profile`. (On the MRS/AP, select **<CTRL><ALT><F1>** to access the root console.)
- 2 On the MRS only, type **maint shell** at the `sci` prompt and press **<Enter>**.
- 3 Enter **init 1** to bring the system to maintenance mode. When prompted, type the root password for system maintenance and press **<Enter>**.
- 4 On the MRS only, type **maint shell** at the `sci` prompt and press **<Enter>**.
- 5 Execute the `/etc/custom` utility.
- 6 Select **Install, A New Product, Entire Product**.
- 7 Insert the diskette labeled "Open IVR 2.5 SCO Unix Year 2000 Patch" and select **continue**.
- 8 When prompted to "Insert the UOD426B - Year 2000 SLS for SCO UNIX/ODT floppy volume 1," select **continue**.

The program extracts and updates the necessary files (this should take approximately four minutes). When the installation is complete, the system displays the following message:

```
To free up space on the harddrive now, you can archive the
updated files now to a backup medium.
```

```
Do you wish to archive the updated files? (y/n)
```

- 9 Type **n** and press **<Enter>**.
The installation of the patch is complete.
- 10 At the prompt, press any key to continue.
The system displays some messages including checks of file permissions.
- 11 When the system completes displaying all messages, quit from the custom utility and remove the diskette from the floppy drive.
- 12 Continue with the next procedure.

Installing SCO Support Level Supplements required to support Sybase 10.0

To install SCO Support Level Supplements (SLS) UOD381A and NET382E, use the following procedures.

Procedure 6-35: Installing SLS UOD381A on the SCO operating system

- 1 If your system is running in multi-user mode, log in as **root**.
- 2 Shut down the system. To shut down the system, type **shutdown -y -g0** and press **<Enter>**.
The system shuts down and displays the following message:

```
    ** Safe to Power Off **  
          -or-  
    ** Press Any Key to Reboot **
```
- 3 Reboot the system.
During the system reboot, the following message is displayed:

```
    Type CONTROL-d to proceed with normal start-up,  
    (or give root password for System Maintenance) :
```
- 4 Type the root password and press **<Enter>**.
- 5 Insert the custom volume diskette, labeled "OPEN IVR 2.5 SCO Unix UOD381A Patch," in the floppy drive.
- 6 At the **#** prompt, type **/etc/custom** and press **<Enter>**.
The system displays the custom menu.
- 7 Select **Install** and press **<Enter>**.
 - a Select **A New Product** and press **<Enter>**.
 - b Select **Entire Product** and press **<Enter>**.

- 8 When the system displays the prompt "Insert distribution volume 1 and press <Enter>," press **<Enter>** (the diskette is already in the drive).

The following messages are displayed:

```
Installing custom data files
Executing Product Prep Script
```

```
Saving files about to be replaced
```

- 9 When prompted to insert the requested volume, press **<Enter>**.

The system displays the following message:

```
Extracting Files
```

and then displays the following prompt:

```
Do you wish to relink the kernel now?
```

- 10 Type **y** and press **<Enter>** to relink the kernel.
- 11 At the prompt, *Do you want to boot from this kernel?*, type **y** and press **<Enter>**.
- 12 At the prompt, *Do you want to rebuild the kernel environment?*, type **y** and press **<Enter>**.
- 13 At the prompt, *Press any key to continue*, press **<Enter>**.
- 14 Continue with Procedure 6-36, "Installing SLS NET382E on the SCO operating system."

Procedure 6-36: Installing SLS NET382E on the SCO operating system

- 1 Insert the custom volume diskette, labeled "OPEN IVR 2.5 SCO Unix NET382E Patch," in the floppy drive.
- 2 At the # prompt, type **/etc/custom** and press **<Enter>**.
The system displays the custom menu.
- 3 Select **Install** and press **<Enter>**.
- a Select **A New Product** and press **<Enter>**.
- b Select **Entire Product** and press **<Enter>**.

- 4 When the system displays the prompt "Insert distribution volume 1 and press <Enter>," press **<Enter>** (the diskette is already in the drive).

Note: If SLS NET382A, NET382B, NET382C, or NET382D is already installed, you are prompted to verify that you want to install the newer SLS.

The following messages are displayed:

```
Installing custom data files
Executing Product Prep Script
```

```
Saving files about to be replaced
```

- 5 When prompted to insert the requested volume, press **<Enter>**.

The system displays the following message:

```
Extracting Files
```

- 6 At this point, you are requested to supply a serial number and an activation key. Enter the appropriate serial number and activation key based on the information displayed on the screen.

The system displays the following prompt:

```
Do you wish to relink the kernel now?
```

- 7 Type **y** and press **<Enter>** to relink the kernel.

- 8 At the prompt, *Do you want this kernel to boot by default?*, type **y** and press **<Enter>**.

- 9 At the prompt, *Do you want the kernel environment rebuilt?*, type **y** and press **<Enter>**.

- 10 At the prompt, *Press any key to continue*, press **<Enter>**.

The system displays the following message:

```
Checking file permissions....
```

and then returns you to the main custom menu.

- 11 The SLS NET382E patch is installed successfully only after you reboot the system. Continue with the next patch installation.

Installing SCO Support Level Supplements required to support Oracle

To install SCO Support Level Supplements (SLS) UOD374A and EFS139OS, use the following procedures.

Procedure 6-37: Installing SLS UOD374A on the SCO operating system

- 1 Insert the custom volume diskette, labeled "OPEN IVR 2.5 SCO Unix UOD374A Patch," in the floppy drive.
- 2 Select **Install** and press **<Enter>**.
 - a Select **A New Product** and press **<Enter>**.
 - b Select **Entire Product** and press **<Enter>**.
- 3 When the system displays the prompt "Insert distribution volume 1 and press <Enter>," press **<Enter>** (the diskette is already in the drive).

The following messages are displayed:

```
Installing custom data files
Executing Product Prep Script

Creating file list...
```

 - 4 When prompted to insert the requested volume, press **<Enter>**.

The system displays the following message:

```
Extracting Files
```

and then displays the following prompt:

```
Do you wish to relink the kernel now?
```
 - 5 Type **y** and press **<Enter>** to relink the kernel.
 - 6 At the prompt, *Do you want to boot from this kernel?*, type **y** and press **<Enter>**.
 - 7 At the prompt, *Do you want to rebuild the kernel environment?*, type **y** and press **<Enter>**.
 - 8 At the prompt, *Press any key to continue*, press **<Enter>**.
 - 9 Continue with Procedure 6-38, "Installing SLS EFS1390 on the SCO operating system."

Procedure 6-38: Installing SLS EFS1390 on the SCO operating system

- 1 Insert the custom volume diskette, labeled "OPEN IVR 2.5 SCO Unix EFS1390S Patch," in the floppy drive.
- 2 Select **Install** and press **<Enter>**.
 - a Select **A New Product** and press **<Enter>**.
 - b Select **Entire Product** and press **<Enter>**.

- 3 When the system displays the prompt "Insert distribution volume 1 and press <Enter>," press **<Enter>** (the diskette is already in the drive).
The following messages are displayed:

```
Installing custom data files
Executing Product Prep Script

Creating file list...
```
- 4 When prompted to insert the requested volume, press **<Enter>**.
The system displays the following message:

```
Extracting Files
```

and then displays the following prompt:

```
Do you wish to relink the kernel now?
```
- 5 Type **y** and press **<Enter>** to relink the kernel.
- 6 At the prompt, *Do you want to boot from this kernel?*, type **y** and press **<Enter>**.
- 7 At the prompt, *Do you want to rebuild the kernel environment?*, type **y** and press **<Enter>**.
- 8 At the prompt, *Press any key to continue*, press **<Enter>**.
- 9 Continue with the following procedure, "Nortel Customization procedure."

Nortel Customization procedure

The final step in upgrading the MRS/Tower, MRS/Rack, or MRS/AP is customization of the software for Nortel.

The script used to customize the software is contained on the MRS Version 3.02.02 Nortel Customization diskette. The script is in UNIX tar format. Use Procedure 6-39 to extract and run the script.

ATTENTION

This step must be completed after all new IVR 2.5/s packages are added (including the MRS base system and options). Customization must be rerun if a package or option is added at a later date.

For account passwords, refer to the “Product Overview” chapter in the *Nortel IVR 2.0/S Installation and Maintenance Guide*. The root password for the MRS is `profile`.

Procedure 6-39: Extracting and running the Nortel Customization script

- 1 At the `sci/install` prompt, type **shell** and press **<Enter>**.
- 2 Insert the diskette labeled “MRS Version 3.02.02 Nortel Customization” into the floppy diskette drive.
- 3 At the prompt type **cd /tmp** and press **<Enter>**.
- 4 Create a directory called `scratch` (type **mkdir scratch** at the prompt and press **<Enter>**).
- 5 Change the directory to `scratch` (type **cd scratch** at the prompt and press **<Enter>**).
- 6 To extract the script from the diskette, type **tar xv6** at the prompt and press **<Enter>**.
- 7 To run the customization script, type **./customize** at the prompt and press **<Enter>**.

The script customizes the installation to make it conform with an OEM/VAR naming convention. The system displays a number of messages during the customization.

- 8 When the system displays the message “Customization is complete,” remove the diskette from the drive.
- 9 To return to the `sci/install` prompt, type **exit** and press **<Enter>**.
- 10 You must restart the system. At the `sci/install` prompt, type **restart** and press **<Enter>**.

Checking the installation

Following the upgrade, the sanity of the system should be verified. Use the following procedures to make sure that the installation of the upgrade is successful.

Procedure 6-40: Verifying the installation of the upgrades

- 1 Verify the revisions of the packages installed (see “Verifying software levels” on page 6-10. The following revisions levels should be displayed:

IVR Generator control panel	2.5
MRS Base package	3.02.02
TTS package (if installed)	3.02.00
VCS ASR package (if installed)	3.02.01
Brooktrout fax package (if installed)	3.02.02
Disk Mirroring Option (if installed)	3.01.00

- 2 Shut down and reboot the MRS. From the maint shell, type **shutdown -y -g0 -i6** and press **<Enter>**.

Note: On systems with disk mirroring, ignore Veritas errors during bootup since synchronism between the two hard disks is still broken at this time.

- 3 Log in as `service`.

- 4 At the `sci` prompt, type **log** and press **<Enter>**.

Verify that the log shows that resources have been checked out correctly, and that the `CC reply` indicates that all options and telephony resources are available. Verify that the `CC` string properly recognizes the configuration of the system. For information on using the log to verify resource availability, refer to Appendix B, “Troubleshooting,” in the *Nortel IVR 2.0/S Installation and Maintenance Guide*.

- 5 Watch for any errors on the IVR Generator console.

- 6 Run `IMTEST` and verify the sanity of the system.

Note: The customer's Nortel IVR 2.01/S applications still have to be validated under Nortel IVR 2.5/S. For information on validation of applications, see "Updating applications to the Nortel IVR Release 2.5 level" on page 6-61.

Updating applications to the Nortel IVR Release 2.5 level

Before running your IVR applications, you must update them to the IVR 2.5/S level. To update your applications, use step a or b of the following procedure.

Procedure 6-41: Upgrading applications to the Nortel IVR Release 2.5 level

- 1 Use one of the following sub-steps to upgrade your applications.
 - a Open Nortel IVR 2.01/S applications using the Nortel IVR Release 2.5 application editor (XAE). The system displays a warning; discard it. Save the application.
 - b Go to the directory where the application is stored. Execute the command `xae -u application_name`

Note 1: Step a cannot be used by customers who have purchased a run-time system.

Note 2: Following any of the two methods does not relieve the VAD/Customer from the obligation of validating their applications. The system used for validation must be running the same release of Open IVR as the production system.

Note 3: Both step a and b can be used to downgrade applications developed under Nortel IVR Release 2.5 to Nortel IVR 2.01/S, or to promote applications from Nortel IVR 2.01/S to Nortel IVR Release 2.5.

Reconnecting the secondary hard disk (MRS with disk mirroring only)

After the successful upgrade to Nortel IVR 2.5/S and after checking to ensure system sanity (see "Checking the installation" on page 6-60), you must reconnect the SCSI connector on the secondary hard disk. Use the following procedure to reconnect the secondary hard disk.

Procedure 6-42: Reconnecting the secondary hard disk on the MRS

- 1 Shut down the MRS. At the maint shell, type **shutdown -y -g0** and press **<Enter>**.
- 2 When the system displays the message that it is safe to power off the MRS, power the MRS off.
- 3 Unplug the MRS from its power source for additional safety.
- 4 Reconnect the SCSI cable to the secondary hard disk.
- 5 When the SCSI cable is connected, plug the MRS into its power source and power up the MRS.
- 6 The MRS automatically reboots.

When you reboot the system after reconnecting the hard drive, the synchronization of the two hard disks takes approximately 35 minutes to complete.

Note: It is recommended not to perform any operation on the MRS during resynchronization. Synchronization is complete when the LEDs indicating hard disk read/write activity are off.

Upgrade failure

If the upgrade procedure on a disk mirrored system has failed, follow Procedure 6-43, “Reconfiguring the primary and secondary hard drive after upgrade failure.”

WARNING

When performing this procedure, be very careful as you disconnect, reconfigure, and reconnect the hard drives on your system.

Procedure 6-43: Reconfiguring the primary and secondary hard drive after upgrade failure

- 1 Shut down the MRS. At the maint shell, type **shutdown -y -g0** and press **<Enter>**.
- 2 When the system displays the message that it is safe to power off the MRS, power the MRS off.
- 3 Unplug the MRS from its power source for additional safety.
- 4 Remove the SCSI cable and power supply cables from both disks.

- 5 Remove the hard disks from their slots.
- 6 Reconfigure the primary hard disk as the secondary hard disk and reconfigure the secondary hard disk as the primary hard disk. (Use the jumper settings as described in "Preparing an MRS with disk mirroring for upgrade" on page 6-16.)
- 7 Put the reconfigured primary and secondary hard disks into the appropriate slots (positions are switched from the previous configuration), and attach the SCSI cable and power supply cables.
- 8 Plug the MRS into the power source and power on the MRS.
- 9 The system automatically reboots.

It takes up to 30 minutes for the synchronization of the two hard disks to complete.

Updated backup

A new backup should be created of the MRS and AP or MRS/AP after the upgrade has been successfully completed. The procedure is described in Chapter 8, "Backup procedures."

Chapter 7: Options—new installations

Overview

This information is intended for use by the distributor and technician responsible for installing options on your Nortel IVR system.

Note: Nortel support is required to activate these options after the hardware and software are installed.

This chapter provides procedural information required for new software installations for the following options:

- Fax
- Speech Recognition
- Text-To-Speech
- ADSI User Function

Note: Use these procedures only when adding new options to your system. If you are upgrading one of these features, see Chapter 6, “Upgrading to Nortel IVR 2.5/S.”

Information regarding system requirements, hardware installation, and activation of these options can be found in the following documentation:

Nortel IVR 2.0/S Fax Option Release Notes (MRS 3.0) (P0813824)

Nortel IVR 2.0/S Speech Recognition Option Release Notes (MRS 3.0) (P0813823)

Nortel IVR 2.0/S Text-To-Speech Option Release Notes (MRS 3.0) (P0813822)

Fax

Overview

Use this information in this section to install the fax option software on your Nortel IVR Release 2.5 system.

Before you begin the software installation

Before you install the software for the fax option, do the following:

- 1 Verify that your system includes all installation requirements.
- 2 Install the hardware.

Refer to the *Nortel IVR 2.0/S Fax Option Release Notes (MRS 3.0)* (P0813824) for information on system requirements, hardware installation, and fax option activation.

Installing the fax option software

The MRS Version 3.02.02 Fax Option installation consists of one installation diskette.

BrookTrout Fax cards come in 1 and 2 Mbyte; Nortel uses the 1 Mbyte card. Regardless of the memory capacity of the board, IRQ 14 is selected, and the kernel must be relinked.

Procedure 7-1: Installing the fax option

- 1 At the `sci/install>` prompt, type **package** and press **<Enter>**.

The system displays the following prompt:

```
Insert the install floppy - type q to quit or hit ENTER  
to continue:
```

- 2 Insert the diskette labeled "MRS Version 3.02.01 Brooktrout Fax Option" into the floppy drive and press **<Enter>** (or type **q** to abort the upgrade procedure).

The system displays informational messages during the installation.

- 3 When you are prompted to choose a vector (prompt “Please choose one of these vectors [11 12 13 14 15] ?”), choose 14 for systems with SCSI disk controllers.

Note: Make sure that the interrupt vector that you choose is unused.

For this example, 14 is chosen.

The following messages display:

```
*****
* The driver will be configured to use IRQ14. Please make
* sure all installed boards are jumpered to this vector.
*****

*****
* 1 Mbyte cards do not support overlays!
* If you are unsure about having 1 Mbyte or 2 Mbyte card
* please contact Voicetek customer support.
*****
```

- 4 At the following system prompt,

Are you using 1 Mbyte Fax Card [yn]?

type **y** for yes. (In this example, a 1 Mbyte Fax card is being used.)

The system displays the following messages:

The configuration is now assumed to be correct.

Do you wish to continue the installation [yn]?

- 5 If the configuration is correct, type **y** at the prompt and press **<Enter>** to continue with the upgrade installation.
- 6 The system then prompts you to do a kernel relink. If this is the last option to upgrade, type **y** at the prompt and press **<Enter>** to do the kernel relink now. If you have other options to upgrade, you can do a kernel relink now or wait until all upgrades are completed (type **n** to bypass the kernel relink).

7-4 Options—new installations

For this example, relinking the kernel now has been chosen.
The system displays the following messages:

```
Please wait - Re-linking the Kernel Now
```

```
The UNIX Operating System will now be rebuilt.  
This will take a few minutes. Please wait.
```

```
Root for this system build is /.....
```

```
Installation complete.
```

```
The installation of the MRS Version 3.02.01 Brooktrout Fax  
Option is now complete.
```

- 7** Press <Enter> to continue when prompted.
- 8** When the system displays the /sci/install> prompt, remove the diskette from the floppy drive.

Completing the installation

For the installation to take effect, you must run Nortel Customization and then restart your system. For information on Nortel Customization, see “Nortel Customization procedure” on page 6-58; for restarting the system and activating the Fax option, refer to the *Nortel IVR 2.0/S Fax Option Release Notes (MRS 3.0)*.

Speech Recognition

Overview

Use the information in this section to install the Speech Recognition option software on your Nortel IVR Release 2.5 system.

Before you begin the software installation

Before you install the software for the Speech Recognition option, do the following:

- 1 Verify that your system includes all installation requirements.
- 2 Install the hardware.

Refer to the *Nortel IVR 2.0/S Speech Recognition Option Release Notes (MRS 3.0)* for information on system requirements, hardware installation, and speech recognition option configuration and activation.

Software installation

To install the Speech Recognition option, you will need to use two procedures. The procedures, “Installing the Dialogic Driver update software” and “Installing the Speech Recognition software” are required to update the base software. Use the following diskettes:

- MRS Version 3.00.01 VCS Driver Update
- MRS Version 3.02.01 VCS ASR Option

Installing Dialogic Driver update software

To install the software for the Dialogic Driver update software for Speech Recognition, follow the steps in Procedure 7-2.

Procedure 7-2: Installing the Dialogic Driver update software

- 1 At the `/sci/install>` prompt, enter **package** and press **<Enter>**.
- 2 When prompted, insert the diskette labeled “MRS Version 3.00.01 VCS Driver Update” into the floppy drive, then press **<Enter>**.
- 3 Press **<Enter>** when prompted.
- 4 The system asks you if you wish to rebuild the kernel. Type **y** and press **<Enter>**.

7-6 Options—new installations

- 5 The system asks you if you want this kernel to boot by default. Type **y** and press **<Enter>**.
- 6 The system asks you if you want the kernel environment rebuilt. Type **y** and press **<Enter>**.
The installation proceeds to completion. The system displays the /sci/install> prompt.
- 7 Remove the diskette from the drive.

Installing new Speech Recognition software

To install the software for the Speech Recognition option, follow the steps in Procedure 7-3.

Procedure 7-3: Installing the Speech Recognition software

- 1 Access the SCI menu and select the `install` option. The system displays a warning message. To continue, type **y** and press **<Enter>**.
- 2 Insert the diskette labeled “MRS Version 3.02.01 VCS ASR Option” into the floppy drive.
- 3 At the `/sci/install>` prompt, type **package** and press **<Enter>**.
- 4 When the system displays the prompt:

Insert the install floppy - type q to quit or hit ENTER
to continue:

press **<Enter>**.

The system displays the following messages:

Searching for files.

Install in progress.

Updating system environment.

Installation complete.

The installation of the TSP Voice Recognition
option is now complete.

Note: When the install is complete, you must remove the installation diskette from the floppy drive before proceeding to the next step or the MRS will not reboot.

- 5** At the `/sci/install` prompt, type `restart` and press **<Enter>**.

The system starts a shutdown. The system automatically reboots once it reaches the shutdown state. Allow the system to boot up normally; it takes several minutes. When the system comes up again, the Speech Recognition option is installed.

Vocabularies

At the `/sci>` prompt, enter **files vocab load** and press **<Enter>**.

```
/sci> files vocab load
```

For more information on the `/sci/files/vocab` level, refer to the *IVR Generator 2.0/S Service Console Interface Reference Manual*.

Completing the installation

For the installation to take effect, you must run Nortel Customization and then restart your system. For information on Nortel Customization, see “Nortel Customization procedure” on page 6-58; for information on restarting the system and activating the Speech Recognition option, refer to the *Nortel IVR 2.0/S Speech Recognition Option Release Notes (MRS 3.0)*.

Text-To-Speech

Overview

Use the information in this section to install the Text-To-Speech option software on your Nortel IVR Release 2.5 system.

Before you begin the software installation

Before you install the software for the Text-To-Speech option, do the following:

- 1 Verify that your system includes all installation requirements.
- 2 Install the necessary hardware.

Refer to the *Nortel IVR 2.0/S Text-To-Speech Option Release Notes (MRS 3.0)* for information on system requirements, hardware installation, and Text-To-Speech option configuration and activation.

Software installation

To install the Text-To-Speech option, you will need to perform the following four procedures:

- Installing the Dialogic/Antares Development Package software (Version 4.1 base software)
- Installing the Dialogic Maintenance supplement
- Installing the L&H/Antares TTS Option update
- Installing the L&H TTS-Specific Language for the Antares Platform

Note: Unless otherwise specified, only one language (English) is included with this package.

Installing the Dialogic/Antares Development Package Version 4.1 software

To install the base software for the Text-To-Speech option, follow the steps in Procedure 7-4, “Installing the Dialogic/Antares Development Package software,” on page 7-9.

Procedure 7-4: Installing the Dialogic/Antares Development Package software

- 1 At the system prompt, log in as **service** or **admin**.
- 2 At the `/sci>` prompt, type **install** and press **<Enter>**.
A warning message appears on the screen indicating that if you proceed any further, the currently running process will be shut down. A prompt appears asking if you want to continue.
- 3 Type **yes** and press **<Enter>** to continue. The SCI lists the install menu options, then displays the `/sci/install>` prompt.
- 4 Wait until the ready light on the front panel of the MRS begins flashing before continuing. This step ensures that all processes are stopped.
- 5 Insert the first diskette labeled "Antares Technology 4.1 (PEB & SCBUS) for UNIX SVR3.2 L&H TTS" into the disk drive.
- 6 At the `/sci/install>` prompt, type **package** and press **<Enter>**.
The system begins the installation and displays the following messages:

```
Searching for the Size file
Install in progress
```

Ignore the CUSLIST error messages.
The system displays the following prompt:

```
Confirm the drive number you wish to install from
((default)0,1):
```
- 7 At the prompt, type **0** and press **<Enter>**.
- 8 Libraries are not required for this installation. You may install packages that require a rebuild of the UNIX kernel. The following prompts pertain to these options:
 - a Do you wish to install the available libraries [yn]?
Type **n** and press **<Enter>**.
 - b Do you wish to rebuild the kernel for each package requiring a kernel rebuild or do you wish to build the kernel once after installing all the selected packages?

Y for a single rebuild and N for individual package rebuilds [yn]?

Type **y** and press **<Enter>**.

- 9 The following packages are available in this distribution:
- Dialogic Antares TTS UNIX Demonstration Package
 - Dialogic Antares TTS UNIX Development Package
 - Dialogic Antares UNIX Development Package
- You are prompted to select the modules desired for installation:
- a** Dialogic Antares TTS UNIX Demonstration Package? [n]
Type **n** and press **<Enter>**.
- b** Dialogic Antares TTS UNIX Development Package? [n]
Type **y** and press **<Enter>**.
- c** Dialogic Antares UNIX Development Package? [n]
Type **y** and press **<Enter>**.
- 10 The system will ask you to confirm your choices. If it is correct, type **y** and press **<Enter>**.
- 11 When prompted, insert the second of two disks in the disk drive and press **<Enter>**.
- The system continues with the installation.*
- 12 When the system prompts you, press **<Enter>** to continue with the installation.
- The installation continues and you are prompted for the following information:*
- a** Do you wish to edit existing configuration files [yn]?
Type **n** and press **<Enter>**.
- b** Do you wish to edit your existing Antares Board config file [yn]?
Type **n** and press **<Enter>**.
- c** Do you wish to continue [yn]?
Type **y** and press **<Enter>**.

- 13** At this point in the installation, you must select an interrupt vector (IRQ) for the driver. The Antares boards cannot use the same IRQ as other Dialogic board types.

The IRQ you select depends on the type of system:

- For an MRS/AP with T1 channels, E1, or D/41ESC telco interface, type **10** and press **<Enter>**.
- For an MRS/AP with LS1/120 or LS1/80 telco interface, type **5** and press **<Enter>**.
- For an MRS, type **12** and press **<Enter>**.

Note: There are only two IRQs available for optional resource cards. IRQ 10 is available for Text-To-Speech, voice recognition, or host connectivity cards. The second IRQ, 14, is available for fax, or host connectivity cards. As a result, this restricts you from having a Text-To-Speech and a voice recognition card in the same system.

The system informs you that the driver will now be installed.

- 14** In order to install the Dialogic Antares UNIX Development Package Version 1.00, the UNIX kernel must be rebuilt.

At the prompt Do you wish to build a kernel now [yn]?, type **y** and press **<Enter>**.

The system rebuilds the kernel. This process takes a few minutes.

- 15** At the prompts:

- a** Do you want this kernel to boot by default? (y/n), type **y** and press **<Enter>**.
- b** Do you want the kernel environment rebuilt? (y/n), type **y** and press **<Enter>**.

The system informs you that the kernel has been successfully linked and installed. To activate it, you must reboot the system.

- 16** The system displays some rebuild messages and the following two messages:

```
The Dialogic Antares UNIX Development Package - Version
1.00 package installation is now complete.
```

```
The installation of the Dialogic Antares UNIX Development
Package - Version 1.00 is now complete.
```

When prompted, press **<Enter>** to continue.

- 17 At this point in the installation, the system allows you to read the release notes.

If you would like to read the release notes at this time, type **y** and press **<Enter>** at the prompt to read them; otherwise, type **n** and press **<Enter>**.
- 18 When prompted, press **<Enter>** to complete the installation.

Remove the diskette before continuing with the next procedure (Procedure 7-5).

Installing the Dialogic/Antares Maintenance supplement

Use Procedure 7-5 to install the Dialogic/Antares Maintenance supplement.

Note: This procedure assumes that the Dialogic Antares Development Package is installed. If not, refer to Procedure 7-4 for the installation of the base Antares option.

Procedure 7-5: Installing the Dialogic Maintenance supplement

- 1 Insert the first diskette labeled "Dialogic/Antares Maintenance Supplement" into the disk drive.
- 2 At the `/sci/install>` prompt, type **package** and press **<Enter>**.

The system displays various messages as the installation progresses.
- 3 When prompted, remove the first diskette from the disk drive, insert the second disk into the drive, and press **<Enter>**.

The system may respond with messages stating the progress of the installation.
- 4 The system informs you that continuing replaces the original Dialogic Antares UNIX development package. Press **<Enter>** to continue.
- 5 Press **<Enter>** to continue when prompted.
- 6 The system displays a warning indicating that continuing with the installation overwrites the existing installation. To continue, type **y** and press **<Enter>**.
- 7 The system displays that the development package is being removed. To continue, press **<Enter>**.
- 8 The system informs you that the System Config File has been created. You are given the opportunity to modify this file. To continue with the System Config File modification, press **<Enter>**.

- 9 The system displays the System Config File using the vi text editor. To exit the vi text editor, type **:q!** and press **<Enter>**.
- 10 When the system informs you that the Antares Board Config File has been created, press **<Enter>** to continue.
- 11 The system displays the Antares Board Config File using the vi text editor. To exit the vi text editor, type **:q!** and press **<Enter>**.
- 12 The system asks if you want to continue the installation. To continue with the installation, type **y** and press **<Enter>**.
- 13 The system asks you if you wish to install libraries. Type **n** and press **<Enter>**.
- 14 At this point in the installation, you must select an interrupt vector for the driver. (The Antares boards cannot use the same interrupt vector as other Dialogic boards.)
- For an MRS/AP with T1 channels, E1, or D/41ESC telco interface, type **10** and press **<Enter>**.
 - For an MRS/AP with LS1/120 or LS1/80 telco interface, type **5** and press **<Enter>**.
 - For an MRS, type **12** (unless IRQ 12 is occupied by another module) and press **<Enter>**.

The system continues with the installation.

- 15 The system prompts you to rebuild the kernel. Type **y** and press **<Enter>** to rebuild the kernel.
- a The system asks you if you want the kernel to boot by default. Type **y** and press **<Enter>**.
- b The system asks you if you want the kernel environment rebuilt. Type **y** and press **<Enter>**.
- 16 At this point in the installation, the system allows you to read the release notes.
- If you would like to read the release notes at this time, type **y** and press **<Enter>** at the prompt to read them; otherwise, type **n** and press **<Enter>**.
- 17 To complete the installation, press **<Enter>** when prompted. When the installation is complete, remove the diskette from the disk drive.
- Continue the installation with Procedure 7-7.

Installing the L&H/Antares TTS Option update

Use Procedure 7-6 to install the L&H/Antares TTS Option update.

Procedure 7-6: Installing the L&H/Antares TTS Option update

- 1 Insert the diskette labeled “MRS Version 3.02.00 L&H TTS Option for Antares” in the disk drive.
- 2 At the `/sci/install>` prompt, type **package** and press **<Enter>**.

Disregard any error messages referring to **rm:** and **grep:** that you may see during this portion of the installation; they do not impact system operation.
- 3 When the installation completes successfully, remove the diskette from the disk drive.

Installing the L&H TTS-Specific Language for the Antares Platform

Use Procedure 7-7 to install the L&H/Antares TTS Option update.

Procedure 7-7: Installing the L&H TTS-Specific Language for the Antares Platform

- 1 Insert the first diskette labeled “L&H TTS xx (where xx is the language) Language Version 1.00” into the disk drive.
- 2 At the `/sci/install>` prompt, type **package** and press **<Enter>**.

The system displays the following messages:


```
Searching for the Size file
Install in progress
Reached end of medium on input.
You may remove this floppy disk.
```

- 3 When prompted, insert the second diskette into the disk drive and press **<Enter>**.

Ignore the CUSLIST error messages.
- 4 The system displays the following message:


```
Text to Speech Language Package (english) - Version 1.00
production
Copyright (c) 1991-1995 Dialogic Corp.
All Rights Reserved
```


To continue, press **<Enter>** when prompted.

5 The system displays the following messages:

To install support for the Text to Speech Language Package (english) you must modify your Antares configuration file.

This file lists each Antares DSP that will be running english.

Your Antares configuration file already contains TTS configuration information. If you wish, you will now be placed in vi, and be given a chance to alter this file to suit your needs.

Bypass the edit of the existing config file; type **n** and press **<Enter>**.

6 The system displays the following information:

Installing data files in /usr/dialogic/data

/usr/dialogic/data/english.cof

Saving Remove script

/usr/dialogic/bin/Remove/Remove.english

The Text to Speech Language Package (english) - Version 1.00 production package installation is now complete.

The installation of the Text to Speech Language Package(english) - Version 1.00 production is now complete

Remove the diskette from the diskette drive.

Continue the installation with Procedure 7-6.

Completing the installation

For the installation to take effect, you must run Nortel Customization and then restart your system. For information on Nortel Customization, see “Nortel Customization procedure” on page 6-58; for information on restarting the system and activating the TTS option, refer to the *Nortel IVR 2.0/S Text-To-Speech Option Release Notes (MRS 3.0)*.

ADSI User function

The ADSI display phone is supported in Nortel IVR Release 2.5 through user function. The ADSI user function is packaged in one 3.5 inch high-density diskette. To install the ADSI user function, follow the steps in Procedure 7-8.

Procedure 7-8: Installing the ADSI User function

- 1 Log in to AP as `nortel`.
- 2 From the UNIX shell window, type `cd /u/nortel/exe` and press **<Enter>**.
- 3 Insert the diskette, labeled "IVR Generator Version 2.00.12 ADSI User Function" (part number A0684415 - NT3R63AB), into the floppy drive of the AP.
- 4 To extract the ADSI user function to the AP, type `tar xv6 adsi` at the prompt and press **<Enter>**.
- 5 Type `cd . .` and press **<Enter>**.
- 6 To extract the C styled readme file `adsi.doc` and move it to the `/u/nortel` directory, type `tar xv6 adsi.doc` and press **<Enter>**.

Installing the D/320SC ADSI firmware patch

Note: Only do this upgrade if you have installed

- OPEN IVR 2.5/S
- ADSI and your system uses a D/320SC card.

To install the D/320SC ADSI firmware patch, use the following procedure.

Procedure 7-9: Installing the D/320SC ADSI firmware patch

- 1 Log in as `service`.
- 2 At the `sci` prompt, type `files restore` and press **<Enter>**.
- 3 Insert the diskette labeled "MRS Version 3.02 D/320SC ADSI Firmware Patch" into the floppy drive and press **<Enter>** to extract the patch from the diskette.
- 4 After the file extraction is complete, remove the diskette from the floppy drive.

- 5 Run Nortel Customization and then restart your system. For information on Nortel Customization, see “Nortel Customization procedure” on page 6-58.

Chapter 8: Backup procedures

Overview

This chapter provides procedures to assist you in

- creating backups of your system prior to and after the upgrade
- hardware setup and software configuration required to install the external tape drive to be used for emergency backup and restoration

In the event that the Nortel IVR 2.5/S upgrade fails, the original Nortel IVR 2.01 installation can be restored by using this backup tape and the appropriate set of N1, N2 and M01 diskettes accompanying the Nortel IVR 2.5 distribution.

Restore procedures are documented in Chapter 9, “Failure recovery.”

Backup time required

The backup should take approximately thirty to forty minutes, depending on the amount of data you have to back up.

Table 8-1: Estimated data backup times

MRS	MRS/AP	AP
High call volume: 3 Mbytes per minute	15 Mbytes per minute*	15 Mbytes per minute*
Low call volume: 6 Mbytes per minute		

* With a 2.5 Gbyte tape. Smaller tapes (250 Mbyte) increase backup duration by about 2.5 times.

Before you begin

Before you begin, use the following check list to prepare for the backup of your system.

Figure 8-2: Backup check list

Backup Check List				✓
Before you begin				
1.	Become familiar with the backup tool.	See “Backup Tool” on page 8-3.		
2.	Check the backup list to make sure that all data you want backed up is part of the list.	See “Backup list” on page 8-4 for information on how to add or delete files from the backup list.		
3.	Make sure that you have a blank tape available to back up your system.	Use a blank 3M 2.5 Gbyte tape.		
Backup procedures				
4.	To back up an AP or MRS/AP, you must install the AP & MRS/AP backmeup script, then run the backup.	See “Installing the AP HD Backup script” on page 6-48 and “Running the AP & MRS/AP HD Backup script” on page 8-7.		
6.	The MRS/AP VSNs are not backed up by the backmeup script.	See “Backup of VSN files” on page 8-8.		
7.	To back up the MRS, you must install the MRS HD & VSN Backup Scripts on your system and then run backup.	See “Installing MRS and VSN backup scripts” on page 6-32 and “Backing up the MRS” on page 8-10.		
8.	The MRS VSNs are not backed up by the backmeup script. (“Backmeup” is a script contained on the diskette labeled “MRS HD and VSN Backup Scripts” used for the backup procedure. The diskette also contains two other scripts — backup.vsn and restore.vsn, used for backing up and restoring VSNs.)	See “Backup of VSNs on MRS” on page 8-11 for more information.		

Backup Tool

Depending on the type of account being used, the Backup Tool displays different information. For example, a scheduled backup can be unscheduled only by the account that created it.

To access the Backup Tool, use the following procedure.

Procedure 8-1: Accessing the Backup Tool

- 1 To access the Backup Tool, press the left mouse button on the desktop background, and select Backup Tool from the pull-down menu.

The default device is /dev/rct0. Once the backup device has been specified, various backup functions can be performed. These functions are displayed at the bottom of the Backup Tool window.

Procedure 8-2: Changing the backup device

- 1 Click on the text entry box, and type another device name in the Device field.

This is now the selected backup device.

- 2 Insert a blank 2.5 Gbyte tape into the tape drive.
- 3 To continue the backup process, click on Backup. To exit from this window, click on Quit.

The following function buttons are available from the Backup Tool window:

Restore

Restores files from a previous backup tape. The data is restored to the hard disk of the AP or MRS/AP.

Backup

Schedules or unschedules backups, displays the list of scheduled backup times, or does an immediate backup. It also enables files to be added or deleted from backup lists.

Quit

Quits or exits the Backup Tool.

Help

Displays general help about the Backup Tool.

The Backup Tool includes an embedded window which displays errors related to immediate backups or restores. The errors written to this window are also written to the /tmp/backup.log file. Any errors generated by scheduled backups are only written to the /tmp/backup.log file. Only I/O errors are reported. All errors appear in the System Console window.

Backup list

A default backup list exists which includes all the required application and environment files and directories. You should always consider backing up the user function executables (residing in the /u/nortel/exe directory) which are not included in the backup default list.

All items on this list are written onto tape during the next immediate or scheduled backup.

On a newly installed system, the Backup Tool creates this default file the first time the tool is run. To return this file back to its standard default contents, remove or rename the backup file (this must be done through a UNIX shell using the rm or mv commands) and restart the Backup Tool.

Procedure 8-3: Specifying a backup list file

- 1 From the Backup Tool main window, click on the Backup button.
The Backup device selection window displays.
- 2 Select either the existing backup file or explicitly name a new backup file. This specified file will contain the list of all files to be backed up.

The following function buttons are available in the backup list file window:

OK

With a valid file name in the selection box, clicking this button displays a window with options to modify or delete the file or to schedule an immediate backup on the file.

Filter

Displays the list of files in the selected directory which match the criteria specified in the Filter box.

Cancel

Displays the main Backup Tool window.

Help

Displays help text on the options available from this window.

Procedure 8-4: Modifying the Selected Backup List file

- 1 From the Backup list file window, click on OK.

The Backup file selection window displays.

- 2 Edit the backup list file by selecting files that should be included in a backup.

The following is a list of optional Nortel IVR related directories and files you can add to your backup list files. The default contents are the /u/nortel/apps and /u/nortel/log.d directories. The other directories and files you add depend on the features installed in your system.

```
/u/nortel/apps/*.vpf
/u/nortel/log.d/*
/u/nortel/exe/*.sai
/u/nortel/3270
/u/nortel/vt100
/u/nortel/ui_lang/en_US/severity
/u/nortel/sys_files/mvrv.config
/u/nortel/user_data/mvrv.config
/u/nortel/ui_lang/en_US/xae.lng
/u/nortel/sys_files/xae.config
/express.start
```

The following function buttons are available from the Backup file selection window:

OK

Displays a window with backup scheduling options.

Add

Adds to the list the file specified in the File to Add or Remove box.

Remove

Removes from the list the file specified in the File to Add or Remove box.

Cancel

Displays the Backup Tool main menu.

Help

Displays help text on the options available from this window.



CAUTION **Risk of data loss**

File names are not checked or validated. If you are not careful, you can overwrite existing files.

Procedure 8-5: Adding a file to the backup list

- 1 From the Backup file selection window, click on the File to Add or Remove text entry box.
- 2 Type a valid file name.
- 3 Click on Add.

If the file does not exist, a message box appears. Otherwise, the file appears at the bottom of the backup list.

ATTENTION

All files can be added to the backup list. This is not recommended. The files which should not be backed up and which generate the warning are those in the following directories: /usr, /bin, /dev, /etc, /lib, /tmp, and most of the files under the / directory (for example, sysv68, and so on).

Only the source “.c” files and “.h” files for user functions from the usr directory are included in the default backup list of files. To include user functions which have been compiled and promoted to the exe directory, these names must be explicitly added to the backup list. Any user function “make” files found in the usr directory must also be added to the backup list if they are to be included in the file backup.

Procedure 8-6: Removing a file from the backup list

- 1 In the Backup file selection window, highlight the directory/file you want to remove or type the name into the text entry box.

The file appears in the File to Add or Remove text entry box.

- 2 Click on Remove.

The file is removed from the list.

If the file does not exist, a warning message appears.

Note: If you select any files in the default file list, a warning message is generated and you cannot remove the file.

Backups

Backup of the AP or MRS/AP

Prior to backup of the AP or MRS/AP, the **AP & MRS/AP HD Backup Script** must be installed. See “Installing the AP HD Backup script” on page 6-48 for more information.

To run the backup script, use the following procedure.

Procedure 8-7: Running the AP & MRS/AP HD Backup script

- 1 Press the <ALT>, <CNTRL>, and <F1> keys to access the command-line screen.
- 2 Log in as root.
- 3 Insert a blank 2.5 Gbyte tape into the tape drive.
- 4 To invoke `backmeup`, type **backmeup** at the prompt and press <Enter>.

The system displays the following prompt:

```
This will copy the UNIX and DOS partition onto tape.  
Continue? (y/n)
```

- 5 At the prompt, type **y** and press <Enter>.

The system displays the following prompt:

```
Do you want to copy the DOS partition into the UNIX root  
filesystem? (y/n)
```

- 6 At the prompt, type **y** and press **<Enter>**.

The system displays the following message:

This will take a few minutes.

This step will take about ten minutes. Once the partitions are backed up the system displays the following message:

Please make sure a Tape is inserted in the Tape Drive,
Continue? (y/n)

- 7 Type **y** and press **<Enter>**.

The system displays the following messages:

SYSTEM IMAGE WILL BE BACKED UP TO TAPE

BACKUP IN PROGRESS PLEASE WAIT.....

This will take approximately 30 to 45 minutes.

- 8 When the backup is complete, remove the tape from the drive, label it, and store it in a safe place.
- 9 Go to Procedure 8-8, "Backup of VSN files," to back up the VSN files.

VSN files backup on the MRS/AP

VSN files must be backed up separately as these are not backed up by the backmeup script.

Prior to backup of the VSNs on the MRS/AP, the **AP & MRS/AP HD Backup Script** must be installed. See "Installing the AP HD Backup script" on page 6-48 for more information.

To back up VSN files, use the following procedure.

Procedure 8-8: Backup of VSN files

- 1 Log in as **root**.
- 2 Insert a blank backup tape into the tape drive.
- 3 At the prompt, type **backup.vsn** and press **<Enter>**.

The system displays the following message:

Is your tape drive located on the same machine as the data?
[ynq]

Note: If the backup program does not detect VSN storage, the system asks if you want to do a mountall.

- 4** Type **y** and press **<Enter>**.

The system displays the following messages:

This utility can only back up to a single tape volume, so please use a sufficient tape size.

Please enter the tape size in megabytes (MB) [2500]:

- 5** To take the default tape size, press **<Enter>**. To specify a different tape size, type in the size (in Mbytes) and press **<Enter>**.

The system displays the following message:

Do you wish to back up all volumes? (xMB) [ynq]

where xMB is the number of megabytes detected.

- 6** Type **y** and press **<Enter>**.

The system displays the following message:

Proceeding with the backup of /vrs.

Is the tape in the drive? [ynq]

- 7** Type **y** and press **<Enter>**.

All files that are backed up are displayed on the screen. When the backup is complete, the system displays the following message:

Done VSN backup.

- 8** Remove the tape from the drive. Label the tape and store it in a safe place.

Backup of the MRS

Prior to backup of the MRS, the **MRS HD and VSN Backup Scripts** must be installed. See “Installing MRS and VSN backup scripts” on page 6-32 for more information.

Verifying the `/ .rhosts` file

Before conducting a full MRS system backup, make sure that the hostname of the MRS system to be backed up is in the `/ .rhosts` file. If your system does not have a `/ .rhosts` file, use the following procedure to create, edit, and set up the file.

Procedure 8-9: Creating, editing, and setting up the `/ .rhosts` file

- 1 Log in to the AP as `root` (password is `openivr`).
- 2 Create this file in the root directory (`/`) if it does not exist.
- 3 Edit the `/ .rhosts` file (use `vi` or another editor) to add the MRS hostname to the file.
- 4 After editing the `/ .rhosts` file, type
`chmod 644 / .rhosts; chown root / .rhosts`
at the root prompt and press **<Enter>**.

This command sets the correct ownership and permissions.

Continue with the following procedure.

Procedure 8-10: Backing up the MRS

- 1 Log in to the MRS as `root` (the root password is `profile`).
- 2 Obtain a Unix shell. At the SCI prompt, type **`maint shell`** and press **<Enter>**.
- 3 Insert a blank 2.5 Gbyte tape into the tape drive.
- 4 At the prompt, type **`backmeup`** and press **<Enter>**.
- 5 When prompted, type the AP's nodename and press **<Enter>** (or type **`q`** and press **<Enter>** to abort the backup).

The system displays the following prompt:

```
Please make sure a tape is inserted in the APs Tape drive,  
Continue (y/n)
```


- 6 Make sure that the tape is in the AP drive; type **y** and press **<Enter>**.

The system displays the following message:

Backup in progress, please wait.

When the backup is complete, the system displays the following message:

End of backup. Please label your tape and put it in a safe location.

VSN files must be backed up separately as these are not captured by **backmeup**. The VSN backup procedure is described in Procedure 8-11, “Backup of VSN files.”

Backup of VSNs on MRS

Prior to backup of VSNs on the MRS, the **MRS HD and VSN Backup Scripts** must be installed. See “Installing MRS and VSN backup scripts” on page 6-32 for more information.

ATTENTION

Perform this procedure when traffic is low or when the system is off-line. The procedure’s use of network resources may reduce responsiveness of the system.

Procedure 8-11: Backup of VSN files

- 1 Log in to the MRS as **root**.
- 2 Obtain a Unix shell. At the SCI prompt, type **maint shell** and press **<Enter>**.
- 3 Insert a blank backup tape into the tape drive on the AP.
- 4 At the prompt, type **backup .vsn** and press **<Enter>**.

The system displays the following message:

Is your tape drive located on the same machine as the data?
[ynq]

Note: If the backup program does not detect VSN storage, the system asks if you want to do a **mountall**.

- 5 Type **n** and press **<Enter>**.

The system displays the following messages:

```
Please enter the tape host [nortel]:
```

Note: The tape host is the AP.

- 6 Enter the tape host name and press **<Enter>** (or press **<Enter>** to accept the default).

The system displays the following messages:

```
This utility can only back up to a single tape volume, so  
please use a sufficient tape size.
```

```
Please enter the tape size in megabytes (MB) [2500]:
```

- 7 To take the default tape size, press **<Enter>**. To specify a different tape size, type in the size (in Mbytes) and press **<Enter>**.

The system displays the following message:

```
Do you wish to back up all volumes? (xMB) [ynq]
```

where **xMB** is the number of megabytes detected.

- 8 Type **y** and press **<Enter>**.

The system displays the following message:

```
Proceeding with the backup of /vrs.
```

```
Is the tape in the drive? [ynq]
```

- 9 Type **y** and press **<Enter>**.

All files that are backed up are displayed on the screen. When the backup is complete, the system displays the following message:

```
Done VSN backup.
```

- 10 Remove the tape from the drive. Label the tape and store it in a safe place.

External tape drive for emergency backup and restoration

Overview

This section contains the hardware setup and software configuration procedures required to install the external tape drive to be used for emergency backup and restoration. The external tape drive is a Tandberg TDC4220 2.5 GB drive, part number A0637905, and can be ordered separately.

Setting up the hardware

To attach the external tape drive, follow these steps.

Procedure 8-12: Setting up the hardware

- 1 If the MRS is running, shut it down. At the prompt, type **shutdown -y -g0** and press **<Enter>**.
- 2 Set the SCSI ID on the back of the tape drive to 2. (Make sure this SCSI ID is not being used by any other device on the system, such as a hard disk).
- 3 Connect the tape drive, using a SCSI cable, to the SCSI Disk Controller connector on the MRS.
- 4 Connect the power cord to the tape drive.
- 5 Turn on the tape drive. (The power switch is on the back).
- 6 Once the tape drive is operational, turn on the MRS.

Configuring the software

Use the following procedure to configure the software for the external tape drive.

Procedure 8-13: Configuring the software

- 1 Log in to the MRS as **root** (the root password for the MRS is **profile**).
- 2 Obtain a Unix shell. At the **sci>** prompt, type **maint shell** and press **<Enter>**.

- 3 At the shell prompt, type **mkdev tape** and press **<Enter>**.

The system displays the following menu:

Tape Drive Configuration Program

1. Install a Tape Drive
2. Remove a Tape Drive
3. Change default Tape Drive

Select an option or enter q to quit:

- 4 Type **3** and press **<Enter>**.

The system displays the following menu:

1. Default Tape Drive Update Menu
2. Cartridge Tape Drive
3. Mini-Cartridge Tape Drive
4. Qic-40 or Qic-80 Tape Drive
5. SCSI Tape Drive

Please select which tape drive you would like to have linked to default devices or enter q to return to main menu:

- 5 Type **4** and press **<Enter>**.

The system displays the following menu:

Default SCSI Tape Drive Update Menu

1. SCSI Tape Drive (Cartridge, Exabyte, 9-Track, DAT)
2. Compaq SCSI Tape Drive

Please select which tape drive you would like to have linked to default devices or enter q to return to main menu:

- 6 Type **1** and press **<Enter>**.

The list of devices which have been created is displayed, along with the following message:

Enter new string, "rm" to remove string, or enter q to leave current string as is:

- 7 Type **q** and press **<Enter>**.

At this point the main menu is displayed once again.

- 8 To return to the Unix shell, type **q** and press **<Enter>**.

- 9 At the prompt, type **cd /etc/conf/cf.d** and press **<Enter>**.
- 10 At the prompt, type **./link_unix** and press **<Enter>**.
The system displays the following messages:
The Unix Operating System will now be rebuilt.
Do you want this kernel to boot by default? (y/ n)
- 11 Type **y** and press **<Enter>**.
The system displays the following:
Backing up /unix to /unix.old
Installing new /unix
Do you want the kernel environment rebuilt? (y/n)
- 12 Type **y** and press **<Enter>**.
- 13 At the Unix prompt, type **shutdown -y -g0** and press **<Enter>**.
When the system restarts, the tape drive will be ready to use.

Chapter 9: Failure recovery

Overview

This information is intended for use by the distributor and technician responsible for maintaining the Nortel IVR Release 2.5 software.

This chapter provides information required for

- Nortel IVR 2.5/S failure recovery/restoring data of systems that are **not** disk-mirrored
- Disk mirroring failure recovery

Note: Nortel supports a maximum of two hard disks on an MRS with disk mirroring.

Nortel IVR 2.5/S failure recovery/restoring data

Overview

These failure recovery procedures are useful in two instances:

- if an MRS hard disk failure occurs on a Nortel IVR 2.5 system
- if a failure occurs during the upgrade procedure from Nortel IVR 2.01 to Nortel IVR 2.5

Before you begin the restore procedure

The restore of your system should take thirty to forty minutes depending on the amount of data on your system.

The following items are required before you can restore your system:

9-2 Failure recovery

- the system backup image tape and the VSN backup tape (see Chapter 8, “Backup procedures,” for more information on backups)
- the appropriate N1, N2, or M01 diskettes
 - N1, N2, and M01 diskettes for the MRS (Ethernet)
 - N1, N2, and M01 diskettes for the MRS (Token Ring)

Note: These diskettes should never be used with a system that is disk-mirrored.

- N1, N2, and M01 diskettes for the MRS/AP

Note: There are two N2 diskettes distributed with the MRS/AP; one for Seagate hard disks and one for Quantum hard disks.

- N1, N2, and M01 diskettes for the AP

Note 1: There are two N2 diskettes distributed with the AP; one for Seagate hard disks and one for Quantum hard disks.

Note 2: N1, N2, and M01 diskettes for the AP will be distributed to all Nortel IVR 2.01 sites.

Restoring from the backup image tape (AP or MRS/AP)

To restore from the backup image tape created on an AP or MRS/AP, use the following procedure.

Procedure 9-1: Restoring from the backup image tape (AP or MRS/AP)

- 1 Shut down the system if possible. If you cannot shut down, you need to power off.

To do a shutdown, type **shutdown -y -g0** and press **<Enter>**.

- 2 Insert the N1 Boot diskette and reboot.
- 3 When prompted, insert the N2 Root Filesystem diskette applicable to this system (either Seagate or Quantum) and press **<Enter>**.
- 4 When prompted, insert the M01 Master diskette and press **<Enter>**.

After a few minutes, the system prompts:

Is the System Image ready? (y/n)

- 5 Insert the backup system image tape, type **y**, and press **<Enter>**. The installation of the system image will take about 30 minutes.
- 6 When the image is extracted from the tape, the following message is displayed:

You may remove the MIT diskette, it is no longer needed.

This message is followed by other messages indicating that the vsn volumes were not restored, and other details regarding the restoration. The final lines should be:

** Safe to Power Off **

- or -

** Press Any Key to Reboot **

- 7 Remove the M01 Master diskette and reboot.
The installation restores the customer applications, database applications, and Express software.
- 8 For an MRS/AP continue with the following procedure; for an AP, the restore is complete.

VSN Volumes Restoration for MRS/AP

Preparing the MRS/AP for VSNs restoration

The VSN file system must be created and cleared on the MRS/AP system.

Use the following procedure to prepare first disk VSN volumes.

Procedure 9-2: Preparing first disk VSN volumes on the MRS/AP

- 1 Use the `fdisk` command to create a third partition. Select 3 for “Use Rest of Disk for UNIX” to create an inactive UNIX file system for VSN volumes.
- 2 To prepare the new partition, type `divvy -m /dev/hd03` at the prompt and press <Enter>.

The system displays the following:

```
There are 160649 blocks in the UNIX area.
```

```
Please enter the number of file systems you want this area  
to be divided into, or press <Return> to get the default  
of 1 file system(s) 1
```

- 3 For 1 filesystem, type 1 and press <Enter>.

The system displays the following:

```
The layout of the filesystems and swap area is now  
prepared.
```

```
Do you wish to make any manual adjustments to the sizes  
or names of the filesystems or swap area before they are  
created on the hard disk? (y/n) y
```

4 Type **y** and press **<Enter>** to change sizes and names.

The following table and menu are displayed:

Name	Type	New FS	#	First Block	Last Block
	NOT USED	yes	0	0	160648
	NOT USED	no	1	—	—
	NOT USED	no	2	—	—
	NOT USED	no	3	—	—
	NOT USED	no	4	—	—
	NOT USED	no	5	—	—
	NOT USED	no	6	—	—
hd03	WHOLE DISK	no	7	0	168682

n[ame] Name or rename a division.

c[reate] Create a new filesystem on this division.

t[ype] Select or change filesystem type on new filesystems.

p[revent] Prevent a new filesystem from being created on this division.

s[tart] Start a division on a different block.

e[nd] End a division on a different block.

r[estore] Restore the original division table.

Enter your choice or q to quit :

5 At the prompt, type **n** to name the new file system and press **<Enter>**.

The system displays the following prompt:

which division? (0 through 7):

6 At the prompt, type **0** and press **<Enter>**.

The system displays the following prompt:

what do you want to call it?

- 7** At the prompt, type **vsnA** and press **<Enter>**.

The system displays the updated table and menu:

Name	Type	New FS	#	First Block	Last Block
vsnA	EAFS	yes	0	0	160648
	NOT USED	no	1	-	-
	NOT USED	no	2	-	-
	NOT USED	no	3	-	-
	NOT USED	no	4	-	-
	NOT USED	no	5	-	-
	NOT USED	no	6	-	-
hd03	WHOLE DISK	no	7	0	168682

n[ame] Name or rename a division.
c[reate] Create a new filesystem on this division.
t[ype] Select or change filesystem type on new filesystems.
p[revent] Prevent a new filesystem from being created on this division.
s[tart] Start a division on a different block.
e[nd] End a division on a different block.
r[estore] Restore the original division table.

Enter your choice or q to quit :

- 8** To create the filesystem you just named, type **c** and press **<Enter>**.

- 9** To quit setting up the filesystem, type **q** and press **<Enter>**.

The following menu is displayed:

i[nstall] Install the division set-up shown
r[eturn] Return to the previous menu
e[xit] Exit without installing a division table

Please enter your choice:

- 10** To install the new filesystem **vsnA**, type **i** and press **<Enter>**.

- 11** Reboot the system.

Clearing the vsnA volume

Use the following procedure to clear the vsnA volume.

Procedure 9-3: Clearing the vsnA volume

- 1 Log in as root.
- 2 At the prompt, type **/usr/vrs/tools/sci -b /usr/vrs** and press **<Enter>**.
- 3 At the **sci** prompt, type **files vsn** and press **<Enter>**.

The following menu is displayed:

```
copy - Copy VSN files.
delete - Delete VSN files.
clear - Clear a VSN volume of all VSNs.
usage - Display the VSN volume utilization.
backup - Backup VSNs to a floppy disk.
map - Display the current VSN allocation map.
done - Return to the previous menu.
```

- 4 At the prompt, type **clear** and press **<Enter>**.

The following prompt is displayed:

```
Default Volume id to clear = 1
Volume id to clear =
```

- 5 Type **1** and press **<Enter>**.

The following prompt is displayed:

```
Ready to Format Volume 1
Are you sure you wish to clear this volume?
Current continue? = yes
yes      - Continue with operation.
no       - Return to previous menu.
continue? =
```

- 6 At the prompt, type **yes** and press **<Enter>**.

The system clears the VSN volume. When complete, it displays the following message:

```
VSN Volume Cleared Successfully
```

Restoring VSN files on an MRS/AP

Use the following procedure to restore the VSN files.

Procedure 9-4: Restoring VSN files on an MRS/AP

- 1 Log in to the MRS/AP as `root`.
- 2 At the prompt, type `restore.vsn` and press **<Enter>**.

If the VSN volumes are not mounted, the system displays the following prompt:


```
There is no VSN partition mounted
Do you wish to execute "mountall" [ynq]
```


Type **y** and press **<Enter>**.
- 3 The system displays the following:


```
Is your tape drive located on the same machine as the data?
[ynq]
```


Type **y** and press **<Enter>**.

The system displays the following messages:


```
Proceeding with VSN restore.
Is the tape in the drive? [ynq]
```
- 4 Insert the VSNs backup image tape, type **y** and press **<Enter>**.

All files that are restored are displayed on the screen. When the restore is complete, the system displays the following message:


```
Done VSN restore.
```
- 5 Remove the tape from the drive.

MRS/Tower or MRS/Rack restoration

MIT process preparations for MRS/Tower or MRS/Rack restoration

The following procedure must be done prior to restoring an MRS/Tower or MRS/Rack.

Procedure 9-5: MIT process preparations for MRS/Tower or MRS/Rack restoration

- 1 If the system has a failed disk, ensure that the replacement 1 GB Seagate drive is already installed in the MRS. Refer to "Replacing a failed disk on the MRS/Rack" on page 8-68 in the *Nortel IVR 2.0/S Installation and Maintenance Guide*.
- 2 Obtain a TTY terminal, keyboard and null modem cable.
- 3 Check that the AP and MRS are connected via an Ethernet or Token Ring network and that the network is operational.
- 4 Obtain the last backup tape.
- 5 Software consisting of:

1	MRS Version 3.00 M01 Master Install Diskette	SMC Ethernet	NT3R6701/A0653095
		Madge Token Ring	NT3R6801/A0653104
2	MRS Version 3.00 N2 Root Diskette	SMC Ethernet	NT3R6703/A0653097
		Madge Token Ring	NT3R6803/A0653107
3	MRS Version 3.00 N1 Boot Diskette	SMC Ethernet	NT3R6702/A0653096
		Madge Token Ring	NT3R6802/A0653106
4	The MRS backup tape		
5	The latest VSN file backup tape or diskettes		

Note: The N1, N2, and M01 diskettes above are **not** the SCO UNIX diskettes in the SCO UNIX boxes. These are special diskettes built in the factory and shipped with the system.

- 6 Make sure that on the AP the following entry is in the `/etc/hosts` file. This is the default node name and address the MRS will be known as within MIT.

205.172.58.111 VK00000

If the MRS's host name before MIT process happens to be "vk00000" (lower case vk), that entry in the `/etc/hosts` file will have to be commented out.

- 7 The AP server name and IP address has to be set to the following values due to the nature of the MIT process. As the following changes are made, make note of what the values were before the change since the system must be returned to these original values at the end of this process. If they are not set as the values below:

- a Log in to the AP as `root`.
- b Run the UNIX utility, "netconfig", to modify the following addresses:

```
AP's Host name:      aurora
AP's IP address:     205.172.58.219
AP's IP Netmask Address: 255.255.255.0
AP's IP Broadcast Address: 205.172.58.255
Domain:             aurora.default.com
```

For more information on the netconfig utility, refer to the *SCO Open Server Administrator's Guide*.

- c Run the UNIX command `uname -S aurora` to change the host name of the AP
- d Run the UNIX commands `tcp stop` and `tcp start` to activate the new set of network addresses.

Note: If more than one MRS is connected to the AP, the MIT procedure is recommended to be conducted at night since it will make the applications running on other MRS's connected to the same AP unavailable during the MIT process.

Restoring from the backup image tape (MRS/Tower or MRS/Rack)

To restore from the backup image tape created on an MRS/Tower or MRS/Rack, use the following procedure.

Procedure 9-6: Restoring from the backup image tape (MRS/Tower or MRS/Rack)

- 1 Ensure that the steps in Procedure 9-5 have been completed, including changing the AP's host name and IP address to the MIT required system configuration.
- 2 Shut down the MRS if possible and then power off. If you cannot shut down, then just power off.

To do a shutdown, type **shutdown -y -g0** and press **<Enter>**.
- 3 Plug the terminal cable into port B and attach the TTY terminal.
- 4 Reset the terminal connection to 8 bits, no parity. This is required only for the restore procedure.
- 5 Insert the N1 Boot diskette and then power up.
- 6 When prompted, insert the N2 Root Filesystem diskette applicable to this system (either Seagate or Quantum) and press **<Enter>**.
- 7 When prompted, insert the M01 Master diskette and press **<Enter>**.
- 8 After a few minutes, the system prompts:

Please enter the HOSTNAME of the local machine:
Please enter the IP ADDRESS of the local machine:
Please enter the IP NETMASK of the local machine:
Please enter the IP BROADCAST of the local machine:
Please enter the Domain Name of the local machine:

9 Enter the appropriate values for each prompt. Next, the system prompts:

Is the System Image Ready? (y/n)

10 Insert the backup system image tape, type **y**, and press **<Enter>**.
- 11 The system prompts for the hostname and the pathname for the System Image. Press **<Enter>** to accept the defaults for both prompts.

Enter the hostname (aurora):<Return>
Enter the Pathname of the System Image (/dev/rStp0):
<Return>

Some further messages are displayed, ending with the following line:

Extracting Image from the tape, it will take a few minutes.

This step will take approximately 30 minutes.

- 12** When the image is extracted from the tape, the following messages are displayed:

```
You may remove the MIT diskette, it is no longer needed.  
It appears that MIT configuration has already been run.  
Removing /.mitdir...  
umount: /dev/vsnB not mounted  
umount: /dev/vsnA not mounted
```

More messages are displayed, followed by:

```
** Safe to Power Off **  
  
- or -  
  
** Press Any Key to Reboot **
```

- 13** Remove the M01 Master diskette and reboot.
- 14** Reset the terminal connection to 7 bits, even parity.
- 15** Change the content in the AP `/etc/hosts` file back to what it was prior to this restoration.
- 16** Reboot the system. During this first MRS bootup, ignore any 'Could not mount partition xxx' warnings that may be displayed.

VSN Volumes Restoration for MRS/Tower or MRS/Rack

Preparing the MRS/Tower or MRS/Rack for VSNs restoration

When restoring the VSN volumes using this method, the VSN file systems must be created and cleared on the MRS system. For more information on preparing VSN volumes for the MRS, see Chapter 21, “Software installation,” in the *Nortel IVR 2.0/S Installation and Maintenance Guide* (NT6R92AA).

To clear the VSN volumes, log in as `root`, access the `sci/files/vsn` menu, and select the `clear` option. This means that if there are two VSN volumes on the MRS system, the `vsnA` and `vsnB` have already been mounted under the `/vrs/vsn` directory with `root` as the owner and `root` as the group.

Other VSN volumes (`vsnC` and `vsnD`) are not mounted and have `root` as owner and `vrs` as group. If you do not have a `fax` directory on the MRS and you know there are fax files backed up, create a `fax` directory under `/vrs/vsn` with owner `root` and group `other`.

Restoring VSN files on an MRS/Tower or MRS/Rack

To restore the VSN files, follow procedure 9-4.

Procedure 9-7: Restoring VSN files on an MRS/Tower or MRS/Rack

- 1 Log in to the AP as `root` (password is `openivr`).
- 2 On the AP, create a `/.rhosts` file in the Nortel account that contains the MRS node name.
- 3 After editing the `/.rhosts` file, type
`chmod 644 /.rhosts;chown root /.rhosts`
at the root prompt and press **<Enter>**.

This command sets the correct ownership and permissions.
- 4 Log in to the MRS as `root`. (The MRS root password is **`profile`**).
- 5 To obtain a root shell, type **`maint shell`** under the `/sci` menu and press **<Enter>**.

- 6** At the prompt, type **restore.vsn** and press **<Enter>**.
- If the VSN volumes are not mounted, the system displays the following prompt:
- ```
There is no VSN partition mounted
Do you wish to execute "mountall" [ynq]
```
- Type **y** and press **<Enter>**.
- 7** The system displays the following:
- ```
Is your tape drive located on the same machine as the data?
[ynq]
```
- Type **n** and press **<Enter>**.
- The system displays the following messages:*
- ```
Please enter the tape host [nortel]:
```
- 8** Enter the tape host name and press **<Enter>** (or press **<Enter>** to accept the default).
- The system displays the following messages:*
- ```
Proceeding with VSN restore.
Is the tape in the drive? [ynq]
```
- 9** Insert the VSNs backup image tape, type **y** and press **<Enter>**.
- All files that are restored are displayed on the screen. When the restore is complete, the system displays the following message:*
- ```
Done VSN restore.
```
- 10** Remove the tape from the drive.

# Disk mirroring failure recovery

## Overview

This section describes the procedures required to recover the primary and secondary disks in the event of failure.

**Note:** Nortel supports a maximum of two hard disks on an MRS with disk mirroring.

## Failure recovery for the primary or secondary disk

To recover the primary or secondary disk in the event of failure, use the following procedure.

### Procedure 9-8: Recovering the primary or secondary disk

- 1 Attempt to shut down the MRS gracefully (if the system is operational); if the system does not shut down, turn off the power.
- 2 Check cabling (SCSI or power) to the failed disk.  
  
If the cables are loose or detached, reattach the cables and turn the power on. Once the system is operational, check disk mirroring using Procedure 9-9, "Checking the disk mirroring volumes," on page 9-18. If disk mirroring is functional, the procedure is complete.  
  
If disk mirroring is not functional at this point, repeat step 1 and then continue from step 3.
- 3 Do a low-level format of the replacement hard disk to ensure that it is completely free of any data before proceeding to the next step. (See Procedure 9-10, "Performing a low-level format on a hard disk," on page 9-20.)
- 4 Replace the defective disk with *exactly* the same type of hard disk.
- 5 To determine the next step in the procedure, use the following table.

| For the        | Ensure                                        | And set the SCSI ID to |
|----------------|-----------------------------------------------|------------------------|
| primary disk   | that the terminators are installed            | 0 (zero)               |
| secondary disk | that the terminators are <i>not</i> installed | 1 (one)                |

- 6 For *primary* disk replacement only, insert the Emergency Boot Floppy Disk for Disk Mirroring into the floppy drive.

- 7 Power up the system and let it auto boot.
- 8 Log in to the MRS as `root`. The root password for the MRS is **profile**.
- 9 At the `/sci` prompt, type `maint shell` and press **<Enter>**.
- 10 At the prompt `#`, type `mkdev hd` and press **<Enter>**.

*The system displays the following messages:*

```
Your rootdisk is attached to a SCSI controller.
The only available choice is to add another SCSI disk.
Do you want to add another SCSI disk? (y/n)
```

- 11 Type **y** and press **<Enter>**.

*The system displays the following messages:*

```
Enter the prefix of the SCSI host adapter that supports
this device
or press <Return> for the default: 'ad'
Enter h for a list of host adapters or enter q to quit:
```

- 12 Press **<Enter>** to select the default host adapter (ad).

*The system displays the following:*

```
Which 'ad' SCSI host adapter supports this device?
Select 0-1, or enter q to quit:
```

- 13 Type **0** and press **<Enter>**.

*The system displays the following:*

```
What is the target ID for this device ?
Select 0-7, or h for help, or q to quit.
```

- 14 To determine the next step in the procedure, use the following table.

| For the        | Type                                      |
|----------------|-------------------------------------------|
| primary disk   | <b>0</b> and press <b>&lt;Enter&gt;</b> . |
| secondary disk | <b>1</b> and press <b>&lt;Enter&gt;</b> . |

*The system displays the following:*

```
What is the LUN of this device ?
Press <Return> to use the default: 0
Select 0-7, or h for help, or q to quit:
```

- 15** Type **0** and press **<Enter>**.

*The system displays the following for primary disk replacement:*

Disk already configured as disk number 0 (/dev/dsk/0s0)

During Installation you may choose to overwrite all  
or part of the present contents of your hard disk.

Do you wish to continue ? (y/n)

*The system displays the following for secondary disk replacement:*

Disk already configured as disk number 1 (/dev/dsk/1s0)

During Installation you may choose to overwrite all  
or part of the present contents of your hard disk.

Do you wish to continue ? (y/n)

- 16** Type **y** and press **<Enter>**.

*The system displays some messages and the following list of choices:*

1. Display Partition Table
2. Use Entire Disk for UNIX
3. Use Rest of Disk for UNIX
4. Create UNIX Partition
5. Activate Partition
6. Delete Partition

Enter your choice or q to quit:

- 17** Type **q** and press **<Enter>**.

*The system displays the following information:*

WARNING: There is no ACTIVE UNIX partition.

Do you wish to specify an active UNIX partition? (y/n)

- 18** Type **n** and press **<Enter>**.

*The system displays some messages and the following:*

Would you rather run the original SCO divvy program (y/n)

- 19** Type **n** and press **<Enter>**.

*The system displays the following:*

Are you sure you want the division tables re-written (y/n)

- 20** Type **y** and press **<Enter>**.

*The system displays some messages and the following:*

Would you like to preserve existing subdisk allocations? (y/n)

- 21 Type **y** and press **<Enter>**.

*The system displays some messages and the following:*

The attach operations will be performed in the back-ground and may take some time.

Hard disk initialization procedure completed.

The system then returns you to a shell prompt.

### ATTENTION

You will notice heavy disk activity— *Wait until it stops.*  
This may take from 5 to 30 minutes.

- 22 At the # prompt, type **cd /etc/conf/bin** and press **<Enter>**.
- 23 At the prompt, type **./idmknod** and press **<Enter>**.
- 24 When the prompt displays again, remove the floppy disk from the drive.
- 25 Type **init 6** and press **<Enter>**.

### ATTENTION

When the system comes back, wait for disk activity to end (it may take 30 minutes or more); then the system will be fully operational.

To check the disk mirroring volumes, use Procedure 9-9, “Checking the disk mirroring volumes.”

## Testing the Disk Mirroring Option

### Check the disk mirroring volumes

To check the disk mirroring volumes, use the following procedure.

#### Procedure 9-9: Checking the disk mirroring volumes

- 1 Log in to the MRS as **root** and go to the shell prompt #.
- 2 At prompt #, type **cd /usr/lib/vxvm** and press **<Enter>**.

3 Type **./volprint** and press <Enter>.

*The system displays the following table.*

| TYPE | NAME       | ASSOC      | K STATE | LENGTH |
|------|------------|------------|---------|--------|
| sd   | hd0s2p0-00 | vsnap1     | -       | 909310 |
| sd   | hd0s2p1-00 | vsnap1     | -       | 909310 |
| sd   | hd0s5p3-DB | -          | -       | 1024   |
| sd   | hd0s5p6-RC | -          | -       | 20     |
| sd   | hd1s5p3-DB | -          | -       | 1024   |
| sd   | hd1s5p6-RC | -          | -       | 20     |
| sd   | mirA_sd    | mirA-1     | -       | 909310 |
| sd   | mirB_sd    | mirB-1     | -       | 909310 |
| sd   | roots-0128 | rootp-0128 | -       | 159210 |
| sd   | roots-0168 | rootp-0168 | -       | 159210 |
| sd   | swaps-0129 | swapp-0129 | -       | 62976  |
| sd   | swaps-0169 | swapp-0169 | -       | 62976  |
| plex | mirA-1     | vsna       | ENABLED | 909310 |
| plex | mirB-1     | vsnb       | ENABLED | 909310 |
| plex | rootp-0128 | root-vol   | ENABLED | 159210 |
| plex | rootp-0168 | root-vol   | ENABLED | 159210 |
| plex | swapp-0129 | swap-vol   | ENABLED | 62976  |
| plex | swapp-0169 | swap-vol   | ENABLED | 62976  |
| plex | vsnap1     | vsna       | ENABLED | 909310 |
| plex | vsnap1     | vsnb       | ENABLED | 909310 |
| vol  | root-vol   | static     | ENABLED | 159210 |
| vol  | swap-vol   | static     | ENABLED | 62976  |
| vol  | vsna       | fsgen      | ENABLED | 909310 |
| vol  | vsnb       | fsgen      | ENABLED | 909310 |



## Performing a low level format on a hard disk

Use the following procedure to do a low level format on a hard disk.

### Procedure 9-10: Performing a low-level format on a hard disk

- 1 Remove the drive from the MRS.
- 2 Shut down an AP or MRS/AP system.
- 3 Disconnect the SCSI cable and the power cable from the Tandberg tape drive on the AP or MRS/AP.
- 4 Connect the SCSI cable and the power cable to the hard drive you removed from the MRS.
- 5 As an additional precaution, remove all the MRS/AP or AP's hard disks.
- 6 Boot the AP with a DOS diskette (not provided through OPEN IVR 2.5 packaging).
- 7 Insert the diskette, labeled "MRS V3.02 Low Level Formatting Utility" (part number A0684420 - NT2R69AA), into the floppy drive.
- 8 At the DOS prompt, type **7870c1g** and press **<Enter>**.
- 9 Select `SCSI Disk Utilities` from the `Options` menu.
- 10 Wait until the hard drive has been detected by the system.
- 11 At the prompt, select the drive model as displayed (Seagate ST31051N).
- 12 At the prompt, choose the `format` option.  
**Note:** Formatting takes approximately 20 minutes to complete.
- 13 Exit the utility. Press **<ESC>** twice and confirm the exit when prompted.
- 14 Power off the system.
- 15 Disconnect the hard drive; reconnect the tape drive and the other hard disks on the AP or MRS/AP.
- 16 Place the formatted MRS hard disk in the MRS.

## Chapter 10: Installing and configuring additional disks on the AP

---

This chapter outlines the procedures for installing and configuring additional hard disks on the AP. (A maximum of four hard disks may be installed on an AP.) This procedure includes the following steps:

- configuring a SCSI parity disk
- physically installing an additional disk
- final installation of an additional disk

**Note:** For information on the installation and configuration of a secondary disk on an MRS/AP, refer to the “MRS/AP hardware” chapter in the *Nortel IVR 2.0/S Installation and Maintenance Guide*.

### Configuring the second hard disk

Use Procedure 10-1 to configure the secondary hard disk.

#### Procedure 10-1: Configuring the secondary hard disk

- 1 Log in to UNIX as `root` and put the system into maintenance mode. If necessary, type `init 1` from the multi-user mode to get to maintenance mode.
- 2 Type `mkdev hd` at the UNIX prompt and press **<Enter>**.
- 3 At the prompt, “Do you want to add another SCSI Disk? (y/n),” type `y` and press **<Enter>**.
- 4 At the prompt, “Enter the prefix of the SCSI host adapter that supports this device,” press **<Enter>** to use the default, `alad`.

- 5 At the prompt, "Which 'xxx' SCSI host adapter supports this device?," type **0** and press **<Enter>**.

In this case, 'xxx' represents the SCSI host adapter specific to your system, `alad`.

- 6 At the prompt, "What is the target ID for this device?," type **1** and press **<Enter>**.
- 7 At the prompt, "What is the LUN for this device?," type **0** and press **<Enter>**.

The following messages are displayed:

```
You are about to add the following SCSI device
```

| Type | Device | Number | ID | LUN | BUS |
|------|--------|--------|----|-----|-----|
| alad | Sdsk   | 0      | 1  | 0   | 0   |

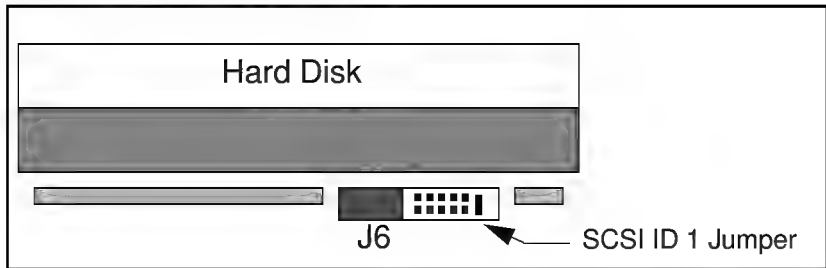
```
Update SCSI configuration? (y/n)
```

- 8 At the prompt, "Update SCSI configuration? (y/n)," type **y** and press **<Enter>**.
- 9 At the prompt, "Would you like to relink the kernel at this time? (y/n)," type **y** and press **<Enter>**.
- 10 At the prompt, "Do you want this kernel to boot by default? (y/n)," type **y** and press **<Enter>**.
- 11 At the prompt, "Do you want the kernel environment rebuilt? (y/n)," type **y** and press **<Enter>**.
- 12 When the kernel is relinked, use the **shutdown -y -g0** command to shut down the system, then turn the power off.

## Physically installing the parity disk

After the system powers down, physically install the secondary disk onto the SCSI bus. Set the secondary disk to SCSI ID = 1, as shown in Figure 10-1, and remove the termination jumper.

Figure 10-1: Setting the SCSI ID



**Note:** It is recommended that the root and parity disks have identical capacity, performance, and type. Ideally, use the same model from the same manufacturer for each disk.

At a minimum, verify that the parity disk has a total capacity equal to or greater than the root disk. The parity disk should be low-level formatted before installation into the system. This ensures that the previous partition table is removed from the disk.

## Final installation of the secondary disk

At this point in the installation, you have already physically installed the hard disk and booted the system.

To continue with the installation, follow the steps in Procedure 10-2.

### Procedure 10-2: Final installation of the secondary disk

- 1 Log in to UNIX as `root` and put the system into maintenance mode. If necessary, type `init 1` from the multi-user mode to get to maintenance mode.
- 2 Enter `mkdev hd` at the UNIX prompt.
- 3 At the prompt, "Do you want to add another SCSI Disk? (y/n)," type `y` and press `<Enter>`.
- 4 At the prompt, "Enter the prefix of the SCSI host adapter that supports this device," press `<Enter>` to use the default, `alad`.
- 5 At the prompt, "Which 'xxx' SCSI host adapter supports this device?," type `0` and press `<Enter>`.

In this case, 'xxx' represents the SCSI host adapter specific to your system, `alad`.

## 10-4 Installing and configuring additional disks on the AP

---

6 At the prompt, "What is the target ID for this device?," type **1** and press **<Enter>**.

7 At the prompt, "What is the LUN for this device?," type **0** and press **<Enter>**.

The following message and prompt are displayed:

During installation you may choose to overwrite all or part of the present contents of your hard disk.

Do you wish to continue? (y/n)

8 At the prompt, type **y** and press **<Enter>**.

9 The hard disk installation program will now invoke the `fdisk` utility. Select option **2**, Use Entire Disk for UNIX, from the menu displayed.

10 To check the newly created partition, select option **1**, Display Partition Table, from the menu.

The partition table should look like the example in Table 10-1.

**Table 10-1: Secondary hard disk partition**

| Partition | Status | Type | Start | End | Size |
|-----------|--------|------|-------|-----|------|
| 1         | Active | UNIX | 1     | x*  | x    |

\* Where x is the number of blocks, which depends on the model of hard disk used

11 If the secondary hard disk partition table looks correct, type **q** and press **<Enter>** to exit the `fdisk` utility.

12 At the prompt, "Please enter the number of file systems you want this disk to be divided into, or press <Enter> to get the default of 1 file system(s)," press **<Enter>**.

13 At the prompt, "Do you wish to make any manual adjustments to the sizes or names of the file systems or swap area before they are created on the hard disk? (y/n)," type **y** and press **<Enter>**.

14 The installation program invokes the `divvy` utility. Type **n** to rename a partition.

15 At the prompt, "Which division? (0 through 7)," type **0** and press **<Enter>**.

- 16** When prompted, what do you want to call it?, type **u1** and press **<Enter>**.
- 17** To change the type of a file system, type **t** and press **<Enter>**.
- 18** When prompted, select division # **0**.  
*The system displays a menu of file system types.*
- 19** To select an EAFS file system, type **4** and press **<Enter>**.  
 At this time, the division table should look like the example in Table 10-2.

**Table 10-2: Division Table for secondary disk**

| Name     | Type       | New FS | # | First Block | Last Block |
|----------|------------|--------|---|-------------|------------|
| u1       | EAFS       | no     | 0 | 0           | 1032190    |
|          |            | no     | 1 |             |            |
|          |            | no     | 2 |             |            |
|          |            | no     | 3 |             |            |
|          |            | no     | 4 |             |            |
|          |            | no     | 5 |             |            |
| d1157all | Whole Disk | no     | 6 | 0           | 1033199    |
|          |            | no     | 7 |             |            |

- 20** If the Division Table for secondary disk information is correct and you are finished using the `divvy` utility, type **q** and press **<Enter>** to exit.
- 21** To install the division setup shown in the table, type **i** and press **<Enter>**.

*The system displays the following message:*

```
Making filesystems. Hard disk initialization procedure
completed.
```

You have completed the final installation of the secondary disk. The next step is to mount the new file system. See “Mounting the new file system” on page 10-6.

## Mounting the new file system

For the file system on the secondary disk to mount automatically at start-up, you must add an entry to the `/etc/default/filesys` file. Use the following procedure to add the `/etc/default/filesys` file entry.

### Procedure 10-3: Adding an entry to the `/etc/default/filesys` file

- 1 To create a mount point for the new file system, type `cd /` at the prompt to change to the `root` directory.
- 2 Create a directory called `u1`. (Type `mkdir u1` and press **<Enter>**)
- 3 Change the directory to `/etc/default`; type `cd /etc/default` at the prompt and press **<Enter>**.
- 4 At the prompt, type `vi filesys` and press **<Enter>** to open the file named `filesys`.
- 5 Add the following line at the end of the file:  

```
bdev=/dev/u1 cdev=/dev/ru1 mountdir=/u1 rcmount=yes
mount=no fsckflags=-y
```
- 6 Save the file and exit vi editor. Type `wq` and press **<Enter>**.
- 7 You must reboot the system for the changes to be recognized by the system. Type `reboot` at the prompt and press **<Enter>**.
- 8 Type `df -v` at the prompt and press **<Enter>** to check if the additional file system has been mounted.

*The system displays the table as shown in Table 10-3.*

**Table 10-3: Filesystems Mounted**

| Mount Dir | Filesystem | Block   | Used   | Free    | % Used |
|-----------|------------|---------|--------|---------|--------|
| /         | /dev/root  | 573938  | 334196 | 179742  | 65     |
| /u        | /dev/u     | 935936  | 108840 | 827096  | 11     |
| /u1       | /dev/u1    | 2064382 | 8446   | 2055936 | 0      |

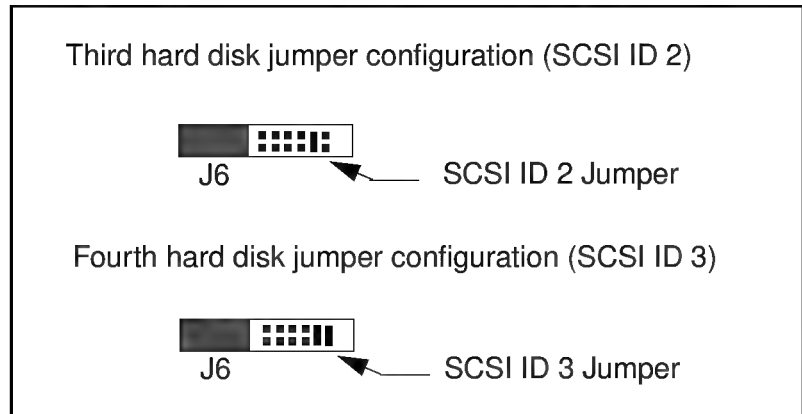
**Note:** The numbers in this table might differ depending on the system configuration.

## Adding third and fourth hard disks

The procedure for adding a third or fourth hard disk is the same as the previous procedure with one difference—you must use different SCSI IDs and filesystem names, for example u2, u3, and so on.

The jumper configuration on the additional hard disks is illustrated in Figure 10-2.

**Figure 10-2: Jumper configuration for additional hard disks**





---

# Chapter 11: SCI command reference changes

---

## Overview

This chapter provides information on new SCI menu options as well as changed menu options from the previous release.

**Note:** The changed option information provided in this chapter replaces the option information contained in the *IVR Generator 2.0/S Service Console Interface Reference Manual*.

Table 11-1 lists the menu options and whether the option is new or modified.

**Table 11-1: New and modified SCI Command Reference menu options**

| Menu                            | Option    | Suboption | Status   |
|---------------------------------|-----------|-----------|----------|
| Configuration<br>(/sci/config)  | /prispan  |           | new      |
|                                 | /list     |           | modified |
|                                 | /vrec     |           | modified |
| File Management<br>(/sci/files) | /agent_id |           | modified |
|                                 | /bri      |           | removed  |
|                                 | /header   | /add      | modified |
| Status<br>(/sci/status)         | /map      | /acd      | new      |

**Note:** As in the *SCI Reference Manual*, the configurations appearing in the examples of this chapter may not accurately represent your particular system setup.

### Configuration menu

The following Configuration menu option is new. For other SCI Configuration menu options, refer to the *IVR Generator 2.0/S Service Console Interface Reference Manual*.

#### **prispan**

##### **/sci/config**

**Action:** Access submenu.

**Function:** Modify Primary Rate ISDN span parameters.

**Accessed By:** service, admin accounts

**Description:** The **prispan** option displays a submenu of options for viewing and modifying configuration parameters associated with each installed T1 PRI ISDN span.

##### **Example:**

```
/sci/config> prispan
Please enter the PRI span to edit = 1
edit - Modify parameters for this PRI span.
list - List parameters for this PRI span.
done - Cancel this operation.
```

## list

### /sci/config

**Action:** Executes a function.

**Function:** List the current configuration parameters.

**Accessed By:** service, admin, user accounts.

**Description:** The `list` option displays the system configuration as it is currently defined in the `sysgen` file. When you modify the system configuration and save your changes using the `/sci/config` options, the `sysgen` file is updated to reflect the new changes. However, the new configuration is NOT implemented until the system is reset with the `reset` option (`/sci` menu) or rebooted using the `restart` option (`/sci/maint` menu).

**Note:** If you modify the system configuration and save your changes, you should reset or reboot the system to ensure that the configuration displayed with the `list` option actually reflects the implemented configuration.

### Example:

```
/sci/config> list
SYSTEM INFORMATION
 Sysgen File Version = 3.02
 Sample Rate = 32k
 Application Processor Link = auto
 A.P. Link Com Port Used = /dev/tty2a
 A.P. Link Failure Mode = none
 Current COM1 (/dev/tty1a) settings = 9600,7e1
 Current COM2 (/dev/tty2a) settings = 9600,7e1
 Duplicate Error Log Path = /dev/null
 Fax SID = 0123456789
 Default Tail Erase [msec] = 250
 Maximum Record Length [Minutes] = 15
 Minimum Valid Voice [msec] = 250
 Severity Level = MINOR

VOLUME INFORMATION
 VOLUME 1 Total Capacity = 99.0MB
```

## 11-4 SCI command reference changes

---

VOLUME 2      Total Capacity = 99.0MB  
VOLUME 3      Total Capacity = 99.0MB  
VOLUME 4      Total Capacity = 99.0MB

### TRUNK INFORMATION

TRUNK GROUP    1      Channels    0 to    3      PEB 0      Loop-B      mu-law  
TRUNK GROUP    2      Channels    4 to    7      PEB 0      Loop-B      mu-law

### FAX INFORMATION

FAX BOARD NUMBER = 1      Status = enabled      PEB 0      mu-law  
PORT    1      Image Width: a4width Length: unlimited Resolution: dpi200  
PORT    2      Image Width: a4width Length: unlimited Resolution: dpi200

FAX BOARD NUMBER = 2      Status = enabled      PEB 0      mu-law  
PORT    3      Image Width: a4width Length: unlimited Resolution: dpi200  
PORT    4      Image Width: a4width Length: unlimited Resolution: dpi200

FAX BOARD NUMBER = 3      Status = enabled      PEB 0      mu-law  
PORT    5      Image Width: a4width Length: unlimited Resolution: dpi200  
PORT    6      Image Width: a4width Length: unlimited Resolution: dpi200

FAX BOARD NUMBER = 4      Status = enabled      PEB 0      mu-law  
PORT    7      Image Width: a4width Length: unlimited Resolution: dpi200  
PORT    8      Image Width: a4width Length: unlimited Resolution: dpi200

### TEXT-TO-SPEECH INFORMATION

TTS BOARD NUMBER = 1  
TTS Board Type = antares  
TTS base IO address = 210  
Number of ports = 16  
PEB number = 0  
Data encoding = Mu\_Law  
DSP    1      enabled      english  
DSP    2      enabled      english  
DSP    3      enabled      english  
DSP    4      enabled      english

### RECOGNIZER INFORMATION

BOARD NUMBER = 1  
Board Type    = vr160-1  
Board Status = enabled  
PEB number    = 0  
Encoding      = Mu\_Law

| DSP # | Model  | # of Recog | Position | Type | Status  | Vocab    |
|-------|--------|------------|----------|------|---------|----------|
| 1     | VRM/40 | 4          | 1 - 4    | disc | enabled | naengstd |

/sci/config>

## vrec

### /sci/config

**Action:** Access submenu.

**Function:** Modify voice recognizer parameters.

**Accessed By:** service, admin accounts

**Description:** The `vrec` option displays a submenu of options for configuring the selected speech recognition board. This option is only available if the Speech Recognition option is installed in the MRS.

The `vrec` option prompts you for the recognizer board you want to view, and then displays a menu of options for modifying the configuration. You can disable or reenable the board, and list or modify the current configuration parameters for each Digital Signal Processor (DSP) on the board.

For each recognizer board, you can specify parameter values for each DSP. Each parameter is described below:

**Recognizer Status:** valid values: enabled, disabled  
Factory-Shipped: enabled

Disables or enables the corresponding recognizer.

**Recognizer Mode:** valid values: continuous, discrete, none  
Factory-Shipped: continuous

Sets the DSP to detect continuous, discrete, or no speech.

**See Also:** `list (/sci/config menu)`

**Example:**

```
/sci/config> vrec
Please Enter the recognizer number to edit = 1
enable- Enable this recognizer board for use.
```

## 11-6 SCI command reference changes

---

disable- Disable this recognizer board from use.  
edit- Modify parameters for this recognizer board.  
list- List parameters for this recognizer board.  
done- Cancel this operation.  
/sci/config/vrec>

## File Management menu

The following File Management menu options are changed. For other SCI File Management menu options, refer to the *IVR Generator 2.0/S Service Console Interface Reference Manual*.

### agent\_id

#### /sci/files

**Action:** Executes a function.

**Function:** Modify the ACD Agent ID file.

**Accessed By:** service, admin accounts

**Description:** The `agent_id` option edits the agent ID file. This file is used by the system when ACD agent IDs must be nonsequential or when they must be greater than four digits in length.

Whenever four-digit, sequential agent IDs can be used, the agent ID is determined by the sum of the base agent ID specified by the `acdgroup` parameter in the trunk type file and the channel number. For example, if the `acdgroup` parameter is set to 0x1000, the agent ID for the ACD agent associated with channel 0x27 would be 0x1027 (for example., 1000 + 27).

When sequential ACD agent IDs are not available, or when the ID must consist of more than 4 digits, you can specify the agent IDs in the `agents` file. In this case, you must set the `acdgroup` parameter in the trunk type file to 0xFFFF.

The `agents` file contains information that is relevant to ACD agents, such as agent, the ID code, password, and SPIDs. This file can be accessed using the `agent_id` option described here.

When you select this option, the SCI invokes the `vi` editor and opens the `agents` file. The `agents` file lists the channels to be used and the assigned agent IDs in decimal format.

To add an agent ID, enter the two-digit, hexadecimal channel number (without the preceding “0x”), white space (tab or space), and then the agent ID (up to eight digits) to be associated with the channel.

**See Also:** *acd (/sci/status/map)*

**Example:** This example shows the agent IDs assigned to channels 0-4.

```
/sci/files> agent_id
00 10000000
01 10000010
02 10000020
03 10000030
04 10000040
```

```
"/usr/vrs/parms/agents"
```



## add

### /sci/files/header

**Action:** Executes a function.

**Function:** Add a header to a VSN.

**Accessed By:** service, admin, user accounts

**Description:** The add option adds a header to the specified VSN. You can identify the VSN type (default is ADPCM) and sample rate. You can also add a comment to the header (up to 160 characters).

*Note:* VSN Type “EPSON” corresponds to a text file with embedded Epson escape sequences.

**See Also:** install (/sci/files/vsn/install)

**Example:** VSN 601 has no header. It contains a raw voice data file that was recorded using Mu-Law compression. This example adds a Mu-Law-type header to VSN 601 and then displays the new header using the query option.

```
/sci/files/header> add
Default VSN to add header to = 0
 VSN to add header to = 601
What is the type of the VSN to add the header to?
Current Choose the VSN type: = 1
1 - ADPCM (Voice file)
2 - FAX
3 - ASCII (text file)
4 - A-law (European PCM file)
5 - Mu-law (American PCM file)
6 - AD SI
7 - EPSON
8 - BFT
default - ADPCM
 Choose the VSN type: = 5
Type in a comment string up to 160 characters:
Welcome to the International Computer Show
/sci/files/header> query
Default VSN header to display = 0
```

## 11-10 SCI command reference changes

---

VSN header to display = 601

```

| VSN Type : Mu-law Data
| Length : 12882 Bytes
Comment Text : Welcome to the International Computer Show
```

/sci/files/header>

# The Status menu

The following Status menu option is new. For other SCI Status menu options, refer to the *IVR Generator 2.0/S Service Console Interface Reference Manual*.

## acd

### /sci/status/map

- Action:** Executes a function.
- Function:** Display the current ACD state of all trunks.
- Accessed By:** service, admin, user accounts
- Description:** The `acd` option displays the ACD state of all VRU trunks. The display changes only when the state of the channel changes to logon (1) or logoff (0). To exit the display, press <ESC>.
- Note:** This option requires a network module. Also, displaying `acd` status will not work correctly unless you are using the trunk type files distributed with MRS 3.00.00 or greater. Changes have been made to the trunk files in MRS 3.00.00 or greater to enable them to correctly display the state of the channel when it is configured as an `acd` trunk.

### Example:

/sci/status/map> acd

| Telephony Server Platform<br>Channel Status Interface |      |   |      |   |      |   |   |   |       |
|-------------------------------------------------------|------|---|------|---|------|---|---|---|-------|
|                                                       | 0    | 1 | 2    | 3 | 4    | 5 | 6 | 7 | 89    |
| 0                                                     | 0    | 1 | 0    | 0 | 0    | 0 | 1 | 1 | 00    |
| 10                                                    | 1    | 1 | 0    | 0 | 0    | 1 | 0 | 0 | 00    |
| 20                                                    | 0    | 1 | 1    | 1 | 0    | 0 | 0 | 0 | 00    |
| 30                                                    | 1    | 0 | 0    | 0 | 0    | 0 | 0 | 0 | 00    |
| 40                                                    | ???? | 0 | ???? | 1 | ???? | 1 | 0 | 0 | ????0 |
| 50                                                    | ???? | 1 | 1    | 0 | 0    | 0 | 1 | 0 | ????0 |

## 11-12 SCI command reference changes

---

|     |      |   |   |   |   |   |   |   |       |
|-----|------|---|---|---|---|---|---|---|-------|
| 60  | 0    | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0???? |
| 70  | 1    | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 00    |
| 80  | 0    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00    |
| 90  | 1    | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 11    |
| 100 | ???? | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 01    |
| 110 | 0    | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 00    |

---

## Chapter 12: Upgrading a run-time system to a development system

---

### Overview

Depending on your requirements, you may want to upgrade from a runtime system to a development system. A run-time system differs from a development system in the following ways:

- 1 In a run-time system, the keylock device is programmed to allow you to view applications only. In a development system, the keylock device allows you to edit and save applications.
- 2 The development system software includes a SCO Development package that provides a C compiler.



### **CAUTION** **Risk of service interruption**

Simultaneous use of a run-time system for development purposes is not supported.

If you do development work on a run-time system, you risk impacting production applications that are running on your system.

### Upgrade

To upgrade from a run-time to development system, you must first order the Runtime to Development upgrade package which consists of a new keylock device for the AP, Development RTU, and Development NTP & SCO Development package.

## 12-2 Upgrading a run-time system to a development system

---

**Note:** It is necessary to remove the SCO development package using “custom” before adding the SCO development package upgrade.

At the Unix prompt, log in as root. Type **custom** and press <Enter>. If the SCO Development package is listed, remove it and then install it using the newly-purchased SCO Development package.

To do the upgrade from a run-time to development system, refer to the procedure “SCO UNIX Development Software Installation on the AP” in the “Software Installation” chapter in the *Nortel IVR 2.0/S Installation and Maintenance Guide*.

# Chapter 13: Configuring a network printer

---

## Overview

This chapter provides the information required to configure a network printer on another machine that is accessed via the network (using TCP/IP or UUCP).

## Configuring a network printer

To configure a network printer, use the following procedure.

### Procedure 13-1: Configuring a network printer

- 1 Choose Printers, Configure, and Add from `sysadmsh`.
- 2 Give the printer a name, and choose the existing interface script `network` (or `network.ps` for a PostScript-capable printer). The connection should be direct and the device should be hardwired. If you are adding a printer on a TCP/IP network, use `/dev/null` for the device name; otherwise, leave the field blank.

## 13-2 Configuring a network printer

---

- 3 Create a file called `/usr/spool/lp/remote`. This file should contain the following line:

```
name: (Tab) command
```

where `name` is the name of the printer on this machine and `command` is the command which transfers the file to be printed to the remote system.

For example, if the name you gave the printer is `remprint` and the name of the remote machine to which this printer is connected is `remmach1` and the name of the printer on machine `remmach1` is called `aquarius`, then the line would read:

For UUCP:

```
remprint uux-remmach1!/usr/bin/lpr -daquarius
```

For TCP/IP:

```
remprint /usr/bin/rcmd remmach1 lp -daquarius
```

- 4 The file `/usr/spool/lp/remote` should have owner and group `lp`, and be publicly readable. To set this, issue the following commands:

```
chown lp /usr/spool/lp/remote
```

```
chgrp lp /usr/spool/lp/remote
```

```
chmod 444 /usr/spool/lp/remote
```

- 5 For a TCP/IP network, a user need not have an account on the print server; all that is necessary is consistency among `lp` accounts on the network. Check that the `.rhosts` contains entries in the following format:

```
client lp
```

**Note:** All print jobs are submitted under the name `lp`.



# List of terms

---

## **Acoustic Coupler**

A device (such as the Audio Interface Unit) used to interface between sound equipment and a port on an MRS.

## **ADSI**

Analog Display Services Interface. ADSI is an in-band signaling protocol developed by Bellcore for interface to display-based telephones thereby programming the phone's softkeys and allowing the user to respond to screen information sent by the IVR system.

## **ANI (Automatic Number Identification)**

Protocol implemented in some trunk cards that records the calling number.

## **AppleTalk**

A communications protocol developed by Apple Computer to allow networking between Macintoshes. All Macintosh computers have a LocalTalk port, running AppleTalk over a 230Kbit serial bus. AppleTalk also runs over Ethernet (EtherTalk) and Token Ring (TokenTalk) network media.

## **Application**

A customized program that controls activity on one or more telephone trunks connected to an MRS.

## **Application Editor**

Used to graphically create or edit interactive voice response applications.

## **AUI**

Attachment Unit Interface. A 15-pin shielded, twisted pair Ethernet cable used (optionally) to connect between network devices and a MAU.

**Backbone**

The main cable in a network.

**Baseband LAN**

A LAN that uses a single carrier frequency over a single channel. Ethernet, Token Ring and Arcnet LANs use baseband transmission.

**BNC**

A standardized connector used with Thinnet and coaxial cable.

**Branch**

A pathway from one cell in an application to the next cell.

**Bridge**

A networking device that connects two LANs and forwards or filters data packets between them, based on their destination addresses. The two LANs must be of the same access method, e.g., Ethernet to Ethernet or Token Ring to Token Ring. Bridges operate at the data link level (layer 2) (or MAC-layer) of the OSI reference model, and are transparent to protocols and to higher level devices like routers.

**Router**

A device that routes specific protocols, such as TCP/IP and IPX, and bridges other protocols, thereby combining the functions of both routers and bridges.

**Buffers**

Used to store information from one cell and pass it to another cell.

**Bus**

A LAN topology in which all the nodes are connected to a single cable. All nodes are considered equal and receive all transmissions on the medium.

**Cell**

The basic element of an application. Each cell causes some action to be performed - for example, playing a prompt to a caller. Each cell has a set of branches to other cells. After the cell performs its action, it determines which branch the application should follow to the next cell.

**Client**

A client is the workstation or PC which makes a request of the server.

**Coaxial Cable**

An electrical cable with a wire conductor at its center surrounded by insulating materials and an outer metal screen conductor with an axis of curvature coinciding with the inner conductor - hence "coaxial". Examples are standard Ethernet cable and ThinWire Ethernet cable.

**Collision**

The result of two network nodes transmitting on the same channel at the same time. The transmitted data is not usable.

**Collision Detect**

A signal indicating that one or more stations are contending with the local station's transmission. The signal is sent by the Physical layer to the Data Link layer on an Ethernet/IEEE 802.3 node.

**CSMA/CD**

Carrier Sense Multiple Access with Collision Detection is the Ethernet media access method. All network devices contend equally for access to transmit. If a device detects another device's signal while it is transmitting, it aborts transmission and retries after waiting a very brief pause.

**Data Link Layer**

Layer 2 of the seven-layer OSI reference model for communication between computers on networks. This layer defines protocols for data packets and how they are transmitted to and from each network device. It is a medium-independent, link-level communications facility on top of the Physical layer, and is divided into two sublayers: medium-access control (MAC) and logical-link control (LLC).

**DECnet**

Digital Equipment Corporation (DEC) proprietary network architecture, a system for networking computers. It runs on point-to-point, X.25 and Ethernet networks.

**DNIS**

Directory Number Identification System. A service provided on a trunk. DNIS identifies to the called system the last 3 or 4 digits of the number actually dialed by the caller. The DNIS digits are sent as in-band DTMF tones on non-ISDN trunks, or using dial pulses on dial pulse (DIP) trunks. On ISDN PRI trunks, DNIS is carried in the called party IE field of the Q.931 setup message.

### **Domain**

A domain is a logical grouping of users and servers in which users are given access to the resources they need to do their jobs.

### **Drop Cable**

The cable connecting an external transceiver to the AUI connector on the NIC. The AUI cable is called a “drop cable” because sometimes they “drop” from the ceiling where the backbone LAN cable is running.

### **DSP**

Digital Signal Processor

### **DTMF (Dual Tone Multi Frequency)**

Term that describes Touchtone (push button) dialing. Applications can collect information from callers by having them press telephone keys to create DTMF tones.

### **Ethernet**

The most popular LAN technology in use today. The IEEE standard 802.3 defines the rules for configuring an Ethernet network. It is a 10 Mbps, CSMA/CD baseband network that runs over thin coax, thick coax, twisted-pair or fiber-optic cable.

### **EtherTalk**

Apple Computer's protocol for Ethernet transmissions.

### **Extended LAN**

A network consisting of LANs connected by bridges. Up to seven bridges can connect LANs into an extended LAN.

### **FDDI**

Fiber optic Distributed Data Interface. A cable interface capable of transmitting data at 100 Mbps. Originally specified for fiber lines, FDDI can also operate over twisted-pair cable for short distances. This variation is known as CDDI (Copper Distributed Data Interface).

### **Fiber-Optic Cable**

A transmission medium composed of a central glass or plastic optical fiber cable surrounded by cladding and an outer protective sheath. It transmits digital signals in the form of modulated light from a laser or LED (light-emitting diode).

### **FTP**

File Transfer Protocol, a TCP/IP protocol for file transfer.

### **Gateway**

A device for interconnecting two or more dissimilar networks. It can translate all protocol levels from the Physical layer up through the Applications layer of the OSI model, and can therefore interconnect entities that differ in all details.

### **IEEE**

Institute of Electrical and Electronic Engineers

### **IEEE 802.3**

The IEEE standard that defines the CSMA/CD media-access method and the physical and data link layer specifications of a local area network. Among others, it includes 10BASE2, 10BASE5, 10BASE-FL and 10BASE-T Ethernet implementations.

### **IEEE 802.5**

The IEEE standard that defines the Token Passing media-access method.

### **Internet**

A series of local, regional, national and international networks linked using TCP/IP. Internet links many government, university and research sites. It provides E-mail, remote login and file transfer services.

### **I/O Address**

The I/O address or Input/Output Address is the starting memory address through which the CPU exchanges data with peripheral devices such as floppy drives, SCSI devices, COM ports (tty's) and other. It is important to notice that no devices should share the same I/O address in memory.

### **IPX**

Internetwork Packet eXchange, a NetWare protocol similar to IP (Internet Protocol). This is a communication protocol that creates, maintains, and terminates connections between network devices, such as workstations and servers. Dedicated IPX drivers combine the IPX protocol with a MAC-level driver into one executable piece of code. IPX cannot be uploaded from memory, supports only a single adapter, and does not support multiple protocols.

### **IRQ**

Interrupt ReQuests (IRQs) are used in IVR 2.5/S hardware platform (PC). They are the way a device signals the data bus and the CPU that it needs attention. In other words, an IRQ is a signal sent to the central processing unit (CPU) to temporarily suspend normal processing and transfer control to an interrupt handling routine. Interrupts may be generated by conditions such as completion of an I/O process, detection of hardware failure, and so on.

### **ISO Layered Model**

The International Standards Organization (ISO) sets standards for computers and communications. Its Open Systems Interconnection (OSI) reference model specifies how dissimilar computing devices such as Network Interface Cards (NICs), bridges and routers exchange data over a network.

### **IVR**

Interactive Voice Response - allowing the caller to interact with on-line host computers and databases such as entering a PIN number on the touch-tone keypad and hearing the current balance of your bank account.

### **Jabber**

Network error caused by an interface card placing corrupted data on the network. Or, an error condition due to an Ethernet node transmitting longer packets than allowed. Jabber control is built into the transceivers to ensure that a single station does not transmit for more than 150 milliseconds.

### **LAN**

Local Area Network, a data communications system consisting of a group of interconnected computers, sharing applications, data and peripherals. The geographical area is usually a building or group of buildings.

### **LocalTalk**

Apple Computer's proprietary 230 Kbps baseband network protocol. It uses the CSMA/CD access method over unshielded twisted-pair wire.

### **Loopstart**

Method to start (seize) a phone line or trunk by giving it a supervisory signal (done by taking it off the hook). Loopstart seizes the line by bridging through the resistance of the tip and ring wires of the telephone line, which starts the dial tone. Normally used for single lines or key systems.

### **MAU**

Medium Attachment Unit, a device used to convert signals from one Ethernet medium to another. The same acronym stands for Multiple Access Unit (MAU) in a Token Ring network and connects stations to the ring via this switching device.

### **MRS**

MultiMedia Resources Server. This term refers to the MRS/Tower and MRS/Rack platforms, as well as the software which enables applications on the Application Processor to access MRS resources.

### **Multiport Repeater**

A repeater, either stand-alone or connected to standard Ethernet cable, for interconnecting up to eight ThinWire Ethernet segments.

### **NetBEUI (NetBIOS Extended User Interface)**

NetBEUI is the protocol most commonly used by LAN Manager to connect the user workstations with the server and with each other. This is the protocol that the LAN Manager installation procedures will install by default, and it is the protocol that Windows for Workgroups uses. NetBEUI extends NetBIOS to a full networking protocol with additional features and services. It is important to note that NetBEUI is designed to be run on a single physical local area network. Unlike Novell's IPX protocol and the standard TCP/IP protocol, NetBEUI is difficult to route across multiple physical network segments.

### **NetBIOS (Network Basic Input Output System)**

The Network Basic Input/Output System is an example of a popular high-level API designed to enable developers to use IBM's PC Network to build network applications. NetBIOS is not really a protocol, it is an interface to a set of commands that enables network applications to perform the following functions: Establish communications sessions between applications, Send and receive data, and Name objects on the network. Examined in the context of the OSI Reference Model, NetBIOS appears at the session layer. If your application requests to drive E, for example, and E has been redirected to a network, NetBIOS intercepts the disk-access and redirects it over the network.

### **NetWare**

A Novell-developed Network Operating System (NOS). Provides file and printer sharing among networks of PC's. Each NetWare network must have at least one file server, and access to other resources is dependent on connecting to and logging into the file server. The file server(s) control user logins and access to other network clients, such as user PC's, printer servers, modem/fax servers, disk/file servers, etc.

### **Network**

An interconnected system of computers that can communicate with each other and share files, data and resources.

### **Network Address**

Every node on an Ethernet has one or more addresses associated with it, including at least one fixed hardware address assigned by the device's manufacturer. Most nodes also have protocol specific addresses assigned by a network manager.

### **Network Management**

Administrative services for managing a network, including configuring and tuning, maintaining network operation, monitoring network performance, and diagnosing network problems.

### **NIC**

Network Interface Card, an adapter card that is inserted into a computer, and contains the necessary software and electronics to enable the station to communicate over the network.



**Node**

Any intelligent device connected to the network. This includes terminal servers, host computers, and any other devices (such as printers and terminals) that are directly connected to the network. A node can be thought of as any device that has a “hardware address.”

**NOS**

Network Operating System, the software for a network that runs in a file server and controls access to files and other resources from multiple users. It can run on top of DOS, and also provides security and administrative tools. Novell's NetWare, Banyan's VINES and IBM's LAN Server are NOS examples.

**Open System Interconnect (OSI)**

A seven-layer model developed by the ISO that governs community interchange between systems. The model is an internationally accepted framework of standards for intersystem communications.

**Packet**

A series of bits containing data and control information, including source and destination node addresses, formatted for transmission from one node to another.

**PCI**

Peripheral Component Interconnect

**PEB**

PCM Expansion Bus

**Physical Address**

An address identifying a single node.

**Physical Layer**

Layer 1, the lowest layer of the OSI model, is implemented by the physical channel. The Physical layer insulates Layer 2, the Data Link layer, from medium-dependent physical characteristics such as baseband, broadband or fiber-optic transmission. Layer 1 defines the protocols that govern transmission media and signals.

**POST**

Power On Self Test

## RAID

Redundant Array of Inexpensive Disks

### RAM terms:

- **BEDO** Burst extended data out RAM requires zero wait states to read or write. This increases uncached system efficiency by roughly 13 percent on a 66MHz 486 PC, and more on Pentium-class computers.
- **Cache RAM** This high-speed SRAM is dedicated to storing information most likely to be required by the CPU, and is often present in 64KB, 128KB, 256KB or 512KB capacities.
- **DIMM** This dual in-line memory module is an emerging form factor with 2 banks of RAM chips soldered to a single circuit board. A DIMM resembles a SIMM, but delivers twice the storage capacity.
- **DRAM** Dynamic RAM is the most common form of computer memory. These are the chips found on most SIMM modules. When we say “memory,” we mean DRAM. DRAM is rated in terms of storage capacity (in megabytes) and access time (in nanoseconds). A 60ns DRAM requires 60 billionths of a second, and 2 CPU wait states to save or return information.
- **EDO** Think of extended data out RAM as fast DRAM. EDO RAM requires only one wait state, and 60ns, for read/write operations. Conventional DRAM requires 2 CPU wait states with access times of 60ns to 80ns. EDO RAM delivers 10 to 13 percent performance gains on systems with less than 256KB of Level 2 cache.
- **Flash RAM** PDAs, PCMCIA cards and flash BIOS setup programs employ this high-speed nonvolatile memory. Flash RAM requires only a trickle of electrical power to retain memory contents over extended periods of time.
- **Shadow RAM** This portion of conventional RAM stores setup and video BIOS code. Moving BIOS code from slow ROM to fast RAM turbocharges PC performance.
- **SIMM** Single in-line memory modules are the prevailing industry-standard RAM form factor. SIMMs consist of a row of RAM chips soldered to a circuit board, and provide a complete memory upgrade on a single card.

- **SRAM** Static RAM is similar to DRAM, but it retains memory contents without refreshing. SRAM is faster and more expensive than DRAM and is generally used for CPU cache memory.
- **VRAM** Conventional DRAM chips allow one read or write operation at a time. Video RAM supports simultaneous read/write, read/read, and write/write operations. It's most often used in graphics accelerators.

### **Repeater**

A repeater is a network device that repeats signals from one cable onto one or more other cables, while restoring signal timing and waveforms.

### **Ring**

A network topology in which the nodes are connected in a closed loop. Data is transmitted from node to node around the loop, always in the same direction.

### **RJ14**

An RJ11 jack with 2 lines on it instead of 1.

### **Router**

Routers connect networks at the network layer (Layer 3) of the OSI model. Routers can be used to connect networks using different network protocols (that is, Ethernet to Token Ring, Token Ring to ARCnet, Ethernet to LocalTalk).

### **RSM**

RS-232 Service module. The card and cabling product in the Meridian 1 which provides four RS-232 ports and alarm capabilities.

### **Server**

Network Operating Systems (NOS) run on computers called servers. Servers run special programs that accept a request from a user on a workstation (client), perform the task, and return the result.

### **SNA**

Systems Network Architecture. This defines the protocols which govern communications among nodes in an SNA network. SNA is concerned with enabling reliable transfer of data among the end users in the network. It also contains protocols for controlling the resources of the network.

**SPX**

Sequential Packet eXchange. Novell's implementation of SPP (Sequential Packet Protocol).

**SQE**

Ethernet-defined signal quality test function, frequently called "heartbeat."

**SQL**

Structured Query Language is used to access relational database management systems (RDBMS).

**Tap**

Usually refers to a point on the network backbone where other devices can be attached. Taps may be of several types, including simple "T" connectors or "Vampire" taps that attach directly to a network cable.

**T-Connector**

A T-shaped device with two female and one male BNC connectors.

**TCP/IP**

Transmission Control Protocol (TCP) and Internet Protocol (IP) are the standard network protocols in UNIX environments. They are almost always implemented and used together and called TCP/IP.

**10BASE2**

Ethernet running on Thinwire network cable.

**10BASE5**

Ethernet running on Thickwire network cable.

**10BASE-T**

Ethernet running on Unshielded Twisted Pair (UTP) cable. Note that 10BASE-T is a point-to-point network media, with one end of the cable typically going to a repeater/hub and the other to the network device.

**Terminator**

Used on both ends of a standard Ethernet or ThinWire Ethernet segment, this special connector provides the 50 ohm termination resistance needed for the cable.

**Thickwire**

Half-inch diameter coax cable.

**Thinwire**

Thin coaxial cable similar to that used for television/video hookups.

**Token**

The character sequence or frame, passed in sequence from node to node, to indicate that the node controlling it has the right to transmit for a given amount of time.

**Token Ring**

Developed by IBM, this 4 or 16 Mbps network uses a ring topology and a token-passing access method.

**Topology**

The arrangement of the nodes and connecting hardware that comprises the network. Types include ring, bus, star, and tree.

**Transceiver**

External transceivers connect the node to the network via an AUI cable, commonly called a “drop cable.” Ethernet adapter cards with a BNC or RJ-45 connector have internal transceivers and therefore, do not require an AUI cable.

**Transceiver cable**

Cable that attaches a device either to a standard or ThinWire Ethernet segment.

**TRS**

Terminal Resource Server. Manages the assignment of system resources to the Gateway products.

**Twisted-Pair cable**

Inexpensive, multiple-conductor cable comprised of one or more pairs of 18 to 24 gauge copper strands. The strands are twisted to improve protection against electromagnetic and radio frequency interference. The cable, which may be either shielded or unshielded, is used in low-speed communications, such as telephone cable. It is used only in baseband networks because of its narrow bandwidth.

**UTP**

Unshielded Twisted-Pair, one or more cable pairs surrounded by insulation. UTP is commonly used as telephone wire.

**VSN (Voice Storage Number)**

Internal numbering system used for prompts, messages, and faxes (if the fax option is installed) used by the MRSs. IVR Generator uses its own numbering system.

**WAN**

Wide Area Network, using common carrier transmission services for transmission of data over a large geographical area.

**Wink**

A momentary interruption in single frequency tone that indicates the distant central office is ready to receive the digits that were just dialed.

**XAE**

X-Windows-based Application Editor, another term for the application editor.

# Index

## Symbols

/.rhosts file, creating, 8-10  
 /.rhosts file, editing, 8-10  
 /.rhosts file, setting up, 8-10

## Numerics

133 MHz processor for AP and MRS/AP, 2-7  
 50 MHz Text-to-Speech card, 2-7

## A

accessing

- the Add Header to Fax Prompts menu, 5-23
- the Digital Prompt Tool, 5-4
- the Load Prompts function, 5-14
- the Quick Prompts function, 5-8
- the Trim silence function, 5-27

ACD Logon/Logoff limitations, 4-4

Aculab 60-port E1 card, 2-7

Aculab-based E1 ISDN PRI Support, 2-5

Add Header to Fax Prompts

- accessing the menu, 5-23
- return to Main Menu, 5-25

add header to fax prompts function, 5-23

add Header to Voice Prompts

- accessing the menu, 5-18

add header to voice prompts, 5-17

adding a prompt header

- Quick Prompts function, 5-10

adding a VSN header to a selected range of  
 voice prompts, 5-19

adding a VSN header to a single prompt, 5-20

adding an entry to the /etc/default.filesys file,  
 10-6

administration tools

- new script file, 3-23

ADPCM voice files, 5-1

ADSI

- deleting VSNs, 4-4

- installing the D/320SC firmware patch,  
 7-16

ADSI option, 3-15

ADSI User function

- installation, 7-16

ADSI user function, 7-16

- ADSCON, 3-15, 3-16

- ADSDATA, 3-15, 3-21

- ADSDIS, 3-15, 3-16

- ADSINFO, 3-15, 3-20

- ADSKEYS, 3-15, 3-17

- ADSMENU, 3-15, 3-19

ADSI User Function Facility, diagram, 3-15

agent\_id

- SCI File Management menu, 11-7

AP & MRS/AP HD Backup script

- installing and running, 6-48

AP backup

- running, 8-7

ARNET SYNC/570 card, 4-10, 4-12

ASR configuration

- with the Aculab E1 card, 2-2

- with the D/41E-SC card, 2-2

ASR option

- upgrade, 6-40

ASR Option, installation, 6-39

audio (\*.au) voice files, 5-1

### B

- backup
  - AP, 8-7
  - MRS/AP, 8-7
- backup and restore
  - emergency external tape drive, 2-6
- backup check list, 8-2
- backup device
  - changing, 8-3
- backup file selection window
  - function button
    - Add, 8-5
    - Cancel, 8-5
    - Help, 8-6
    - OK, 8-5
    - Remove, 8-5
- backup image tape
  - Nortel IVR 2.5/S
    - restoring the AP, 9-3
    - restoring the MRS, 9-11
    - restoring the MRS/AP, 9-3
- backup list, 8-4
  - adding a file, 8-6
  - removing a file, 8-7
  - specifying a backup list file, 8-4
- Backup List file
  - modifying, 8-5
- backup list file window
  - function button
    - cancel, 8-4
    - filter, 8-4
    - help, 8-5
    - Ok, 8-4
- backup procedures
  - before you begin, 8-2
  - VSN volumes (MRS to AP), 8-11
- Backup Tool, 8-3
  - accessing, 8-3
  - changing the backup device, 8-3
  - function button
    - backup, 8-3
    - help, 8-3
    - quit, 8-3

- restore, 8-3
- backups, 8-7
  - installing and running the AP & MRS/AP HD Backup script, 6-48
  - VSNs on MRS, 8-11
- building a new user function, 4-9

### C

- Call Information (CINFO) Cell, 3-2
- cells
  - Call Information (CINFO), 3-2
  - COUT, 4-3
  - GDAT, 4-3
  - hang ups not detected, 4-3
  - PDAT, 4-3
  - PLAY, 4-3
  - TONE Cell, 3-10
- check list
  - backup procedures, 8-2
  - Nortel IVR 2.5/S upgrade, 6-3
- CINFO (Call Information) Cell
  - application use diagram, 3-4
  - diagram, 3-3
- CINFO cell
  - Calling Line Categories, 3-9
  - diversion reasons for information buffer
    - parameter, 3-8
  - retrieving the diversion reason diagram, 3-6
  - retrieving the number from which call is diverted diagram, 3-7
- CINFO cell parameters
  - Call Audit Enabled, 3-7
  - Call Audit Information, 3-8
  - Information Buffer, 3-8
  - Type of Information, 3-8
- Configuration menu
  - SCI command reference, 11-2
- configuring a network printer, 13-1
- configuring the second hard disk
  - AP, 10-1
- connector and connector pin assignments
  - D-25, 4-11
  - DB-15, 4-10



COUT cell, 4-3

## D

D-25 connector, 4-11

D/320SC ADSI firmware patch  
installation, 7-16

D/41ESC firmware patch for the MRS and  
MRS/AP, installation, 6-30

D/81A firmware patch for the MRS and  
MRS/AP, 6-30

database

accessing a remote Sybase database, 4-2

DB-15

connector, 4-10

loopback connector wiring diagram, 4-12

deleting VSNs in ADSI, 4-4

development system

upgrading from a run-time system, 12-1

Dialogic Driver update software, 7-5

Dialogic/Antares Development Package

Version 4.1 software

installation, 7-8

Text-To-Speech, 7-8

Dialogic/Antares Maintenance supplement

installation, 7-12

Digital Prompt Tool, 5-1

accessing, 5-4

accessing the Quick Prompts function, 5-8

enter selection field, 5-5

features, 5-3

installation, 5-3

load prompts on the MRS, 5-32

prompt management, 2-5

Quick Prompts, 5-7

related publications, 5-1

selecting system function, 5-6

system configuration, 5-4

system configuration file

default values, 5-4

system requirements, 5-3

Trim silence function, 5-11

disk mirroring

checking the volumes, 9-18

failure recovery, 9-15

recovering the primary or secondary disk,  
9-15

testing, 9-18

upgrading, 6-16

Disk Mirroring Option, 6-30

download prompts to the MRS

Quick Prompts functions, 5-12

## E

E1 CAS/ISDN PRI for the MRS and MRS/AP,  
6-34

E1 CAS/ISDN protocols

activation, 6-35

installing, 6-34

EFS139OS

SCO patch

installing, 6-57

enhanced capacity, 2-3

enhancements

IVR Generator, 3-1

Text To Speech, 3-1

enter selection field

Digital Prompt Tool, 5-5

executing the Trim silence procedure, 5-11

external tape drive

configuring the software, 8-13

emergency backup and restore, 2-6

overview, 8-13

setting up the hardware, 8-13

extracting and running the Nortel

Customization script, 6-58

## F

failure recovery

disk mirroring, 9-15

Nortel IVR 2.5/S, 9-1

before you begin, 9-1

restoring the AP, 9-3

restoring the MRS, 9-10

restoring the MRS/AP, 9-3

### Fax

- installation, 7-2
- new installation, 7-2
- software installation
  - before you begin, 7-2

### fax configuration

- with the Aculab E1 card, 2-2
- with the D/41E-SC card, 2-2

### fax file

- adding a VSN header, 5-24

### Fax Option

- Nortel IVR 2.5/S upgrade, 6-37
- upgrade, 6-37

### features

- enhanced programming, 3-2

### features, new

- overview, 2-1

### File Management menu

- SCI command reference, 11-7

### final installation of the secondary disk

- AP, 10-3

### Flexible Feature Code, 4-5

## G

### GDAT cell, 4-3

## H

### hard disks

- adding third and fourth to the AP, 10-7
- configuring additional disks on the AP, 10-1
- installing addition disks on the AP, 10-1

### hardware improvements

- 133 MHz processor for AP and MRS/AP, 2-7
- 50 MHz Text-to-Speech card, 2-7
- Aculab 60-port E1 card, 2-7
- modems, 2-8
- new model number for AP and MRS/AP 1
  - Gbyte Seagate hard drive, 2-8

### header/add

- SCI File Management menu, 11-9

## I

### installation

- Disk Mirroring Option, 6-30

### installing and configuring additional disks on the AP, 10-1

### installing International Country Parameters, 6-26

### installing IVR Generator 2.00.12, 6-43

### installing SCO serialization, 6-52

### installing the Digital Prompt Tool, 5-3

### installing the fax option, 7-2

### International Country Parameters, 6-26

### IP Address

- defaults, 4-6

### IVR Generator 2.5/S

- upgrades, 6-42

- extracting the installation file from the diskette, 6-42

### final steps, 6-52

### installing IVR Generator 2.00.12, 6-43

### Report Writer, 6-48

### updated backup, 6-62

## J

### Japanese language

- PDAT cell, 2-6

## K

### kernel parameters, 6-45

## L

### L&H TTS-Specific Language for the Antares Platform

- installation, 7-14

### L&H/Antares TTS Option update

- installation, 7-14

### limitations

- ACD logon/logoff feature, 4-4

### line side T1 Trunk file

- installing, 6-31

- list
  - SCI configuration menu, 11-3
- Load Prompts function
  - accessing, 5-14
  - AP or MRS/AP, 5-13
  - loading tar files, 5-15
  - return to main menu, 5-17
- loading DOS files, 5-16
- loading prompts
  - Quick Prompts function, 5-9
- Loading tar files, 5-15
- loopstart Trunk parameter
  - change recommendation, 4-5

**M**

- manuals, IVR reference, xiv
- map/acd
  - SCI Status menu, 11-11
- modems, 2-8
- modifying Report Writer, 6-50
- mounting the new file system
  - AP, 10-6
- MRS
  - backing up, 8-10
- MRS 3.02.02 Dialogic PTR 3427, installation, 6-23
- MRS base system package upgrades,
  - completion, 6-35
- MRS External Alarm Interfaces, 4-7
- MRS system configuration, upgrading, 6-27
- MRS/AP
  - preparing first disk VSN volumes, 9-4

**N**

- NET382E
  - SCO patch
    - installing, 6-55
- network printer
  - configuring, 13-1
- Nortel Analog ACD Trunk Type Option file
  - installing, 6-32

- Nortel IVR 2.5/S
  - upgrade, 6-1
    - adding the MRS 3.02.02 Dialogic PTR 3427, 6-23
  - ASR Option, 6-39
  - before you begin, 6-2
  - check list, 6-3
  - completion of the MRS base system package, 6-35
  - D/81A firmware patch for the MRS and MRS/AP, 6-30
  - determining system options and revision levels, 6-11
  - E1 CAS/ISDN PRI for the MRS and MRS/AP, 6-34
  - Fax Option, 6-37
  - installing E1 CAS/ISDN protocols, 6-34
  - International Country Parameters, 6-26
  - MRS and options upgrade procedures, 6-16
  - Nortel Support, 6-2
  - Options, 6-36
  - preparing the MRS System, 6-20
  - procedures, 6-16
  - SCO Operating System, 6-15
  - software upgrade package, 6-13
  - Span Driver installation, 6-25
  - system backup, 6-15
  - Text-To-Speech (TTS), 6-36
  - the ASR option, 6-40
  - upgrading the MRS base system, 6-22
  - upgrading the MRS system configuration, 6-27
  - verifying the base software level, 6-11
  - verifying the BIOS version level, 6-11
- Nortel Support
  - upgrade, 6-2
- North American ISDN PRI Support, 2-5

**O**

- options
  - new installations, 7-1
- Options, upgrades, 6-36

**P**

- parameters, CINFO cell
  - Call Audit enabled, 3-7
  - Call Audit information, 3-8
  - Information Buffer, 3-8
  - Type of Information, 3-8
- PDAT cell, 4-3
  - Japanese language support, 2-6
- PEB connectivity
  - diagram, 2-3
  - rules, 2-2
- physically installing the parity disk
  - AP, 10-2
- pin assignments
  - 3270/5250 SNA/SDLC card, 4-10
- pinout
  - 3270/5250 SNA/SDLC card, 4-10
- PLAY cell, 4-3
- prispan
  - SCI configuration menu, 11-2
- programming features, enhanced, 3-2
- promoting a new user function, 4-9
- Prompt Loading Facility
  - Quick Prompts function, 5-12
- prompt management
  - Digital Prompt Tool, 2-5
- protocol enhancements
  - Aculab-based E1 ISDN PRI Support, 2-5
  - North American ISDN PRI Support, 2-5
  - overview, 2-5

**Q**

- Quick Prompts
  - Digital Prompt Tool, 5-7
- Quick Prompts function
  - adding a prompt header, 5-10
  - loading prompts, 5-9
  - Prompt Loading Facility, 5-12

**R**

- remote Sybase database
  - accessing, 4-2

**Report Writer**

- modifications, 6-50
- remove all Report Writer software, 6-48
- removing old files, 6-48
- upgrade, 6-48
- upgrading the software, 6-49
- reports
  - Call Detail, 4-3
  - requiring landscape print, 4-3
  - Transaction, 4-3
- resource sharing, 2-1
- restore
  - Nortel IVR 2.5/S, 9-1
  - before you begin, 9-1
- restoring VSN files on the MRS, 9-13
- restoring VSN files on the MRS/AP, 9-4
- return to Main Menu
  - from Add Header to Fax Prompts function, 5-25
- return to the Main Menu
  - Load Prompts function, 5-17
- returning to the Main Menu
  - add Header to Voice Prompts function, 5-22
- revision levels, determining, 6-11
- run-time system
  - upgrading to development system, 12-1
- run-time system, restriction, 4-4

**S**

- SCI command reference
  - changes, 11-1
  - configuration menu, 11-2
  - File Management menu, 11-7
  - list, 11-3
  - new and modified menu options, 11-1
  - prispan, 11-2
  - Status menu, 11-11
  - vrec, 11-5
- SCI File Management menu
  - agent\_id, 11-7
  - header/add, 11-9
- SCI Status menu
  - map/acd, 11-11

SCO Operating System, 6-15  
 SCO patch installation  
   EFS139OS, 6-57  
   NET382E, 6-55  
   UOD374A, 6-56  
   UOD381A, 6-54  
 SCO serialization, 6-52  
 SCO Support Level Supplements  
   installing, 6-53  
 SCO Unix Year 2000 patch, 6-52  
 script file, new, 3-23  
 Seagate hard drive  
   AP and MRS/AP, new model number for 1  
     Gbyte drive, 2-8  
 selecting system function  
   Digital Prompt Tool, 5-6  
 software upgrade package contents, 6-13  
 Span Driver, 6-25  
 Speech Recognition  
   completing the installation, 7-7  
   installing Dialogic Driver update software,  
     7-5  
   installing the software, 7-6  
   loading vocabularies, 7-7  
   new installation, 7-5  
   software installation  
     before you begin, 7-5  
 SQL, supported versions, 4-1  
 Status menu  
   SCI command reference, 11-11  
 Sybase  
   installing SCO support level supplements,  
     6-53  
 SYNC/570 card, 4-10  
 system backup, 6-15  
 system options, determining, 6-11

## T

T1 ACD Trunk Type Option file  
   installing, 6-31  
 Tagged Image File Format (TIFF) fax files, 5-1  
 testing a user function, 4-9  
 testing the Disk Mirroring Option, 9-18

Text-To-Speech  
   completing the installation, 7-15  
   Dialogic/Antares Maintenance supplement  
     installation, 7-12  
   enhancements, 3-1  
   installing the L&H/Antares TTS Option  
     update, 7-14  
   L&H TTS-Specific Language for the  
     Antares Platform  
     installation, 7-14  
   new installation, 7-8  
   Nortel IVR 2.5/S upgrade, 6-36  
   software installation, 7-8  
     before you begin, 7-8  
 TONE cell enhancements, 3-10  
 Transfer Files  
   using ZMODEM Communication Protocol,  
     4-22  
 Trim silence function, 5-26  
   accessing, 5-27  
   return to Main Menu, 5-31  
   trim a range of prompts, 5-28  
   trimming a single prompt, 5-30  
 Trunk Parameter  
   “r\_ird”, 4-6  
   “ringcnt”, 4-6  
 TTS configuration  
   with the Aculab E1 card, 2-2  
   with the D/41E-SC card, 2-2  
 typographic conventions, xiii

## U

UOD374A  
   SCO patch  
     installing, 6-56  
 UOD381A  
   SCO patch  
     installing, 6-54  
 updated backup, after upgrade, 6-62  
 upgrade procedures  
   MRS and options, 6-16  
   Nortel IVR 2.5/S, 6-16

- upgrading
  - run-time system to a development system, 12-1
- upgrading an MRS with disk mirroring, 6-16
- upgrading from run-time to development system, 12-1
- upgrading options, overview, 1-1
- upgrading Report Writer software, 6-49
- upgrading the Fax Option, 6-37
- upgrading the MRS base system, 6-22
- upgrading the MRS system configuration, 6-27
- upgrading to Nortel IVR 2.5/S, 6-1
- user function
  - promoting, 4-9
  - testing, 4-9
- user function, ADSI
  - ADSCON, 3-16
  - ADSDATA, 3-21
  - ADSDIS, 3-16
  - ADSINFO, 3-20
  - ADSKEYS, 3-17
  - ADSMENU, 3-19
- User Functions, 4-9
- user functions
  - building new, 4-9

## V

- VAD revalidation requirement, 1-2
- verifying the base software level
  - Nortel IVR 2.5/S upgrade, 6-11
- verifying the BIOS version level, 6-11
- vocabularies
  - speech recognition, 7-7
- voice file
  - adding a VSN header, 5-21
- voice prompt
  - adding a VSN header, 5-20
- Voice Prompts
  - add header function
    - return to Main Menu, 5-22
  - trim silence from a range of prompts, 5-28
  - trim silence from a single prompt, 5-30

- voice prompts
  - add header, 5-17
  - adding a VSN header to a selected range, 5-19
- voice prompts, managing, 2-1
- vrec
  - SCI configuration menu, 11-5
- VSN
  - MRS/AP
    - preparing first disk volumes, 9-4
- VSN DATA FILES, 6-51
- VSN files
  - restoring on the MRS, 9-13
  - restoring on the MRS/AP, 9-4
- VSN headers
  - adding to a single fax file, 5-24
  - adding to a voice file, 5-21
- vsna
  - setup, 9-4
- VSNs
  - backup on MRS, 8-11
- vtekhos\_tadm
  - script file, 3-23

## W

- wiring diagram
  - DB-15 loopback connector, 4-12

## Y

- Year 2000 patch
  - SCO Unix
    - installation, 6-52

## Z

- ZMODEM Communication Protocol for Transfer Files, 4-22

# Nortel IVR 2.5/S

## Product Overview Guide

Toronto Information Products  
Nortel  
522 University Avenue, 14th Floor  
Toronto, Ontario, Canada  
M5G 1W7

© 1997 Northern Telecom  
All rights reserved

Information is subject to change without notice. Northern Telecom reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant.

IVR and Nortel are registered trademarks of Northern Telecom in the U.S. and Canada. IVR Generator 2.0/S and Meridian 1 are registered trademarks of Northern Telecom. DEC and VT 420 are registered trademarks of Digital Equipment Corporation. HP, LaserJet, and ThinkJet are registered trademarks of Hewlett-Packard Company. X Window System and X are trademarks of the Massachusetts Institute of Technology. UNIX is a registered trademark of AT&T. SCO is a trademark of The Santa Cruz Operation, Inc. INGRES is a trademark of Ingres, Corp. ORACLE is a trademark of Oracle Corp. INFORMIX is a trademark of Informix Software, Inc. SYBASE is a trademark of Sybase, Inc.

|                   |              |
|-------------------|--------------|
| Product release:  | 2.5/S        |
| Document release: | Standard 1.0 |
| Date:             | July 1997    |

Printed in the United States of America

**NORTEL**  
NORTHERN TELECOM